Chang Residence Remodel
File Number: 11-111292-LO

DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
11511 MAIN ST., P.O. BOX 90012
BELLEVUE, WA 98009-9012

DETERMINATION OF NON-SIGNIFICANCE

PROPONENT: Ying Chang

LOCATION OF PROPOSAL: 255 Shoreland Drive SE

NAME & DESCRIPTION OF PROPOSAL: Chang Residence Remodel

Improvements to an existing single-family residence which include 1,230 square feet of disturbance within a steep slope critical area associated with an existing single-family residence for construction of a stair access and replacement and removal of decks.

FILE NUMBER: 11-111292-LO

The Environmental Coordinator of the City of Bellevue has determined that this proposal does not have a probable significant adverse impact upon the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(C). This decision was made after the Bellevue Environmental Coordinator reviewed the completed environmental checklist and information filed with the Land Use Division of the Development Services Department. This information is available to the public on request.

- ☐ There is no comment period for this DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's office by 5:00 p.m. on _____.
- ☒ This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's Office by 5 p.m. on 9/1/11.
- ☐ This DNS is issued under WAC 197-11-340(2) and is subject to a 14-day comment period from the date below. Comments must be submitted by 5 p.m. on _____. This DNS is also subject to appeal. A written appeal must be filed in the City Clerk's Office by 5 p.m. on _____.

This DNS may be withdrawn at any time if the proposal is modified so that it is likely to have significant adverse environmental impacts; if there is significant new information indicating, or on, a proposals probable significant adverse environmental impacts (unless a non-exempt license has been issued if the proposal is a private project): or if the DNS was procured by misrepresentation or lack of material disclosure.

Environmental Coordinator

8-18-11
Date

OTHERS TO RECEIVE THIS DOCUMENT:
State Department of Fish and Wildlife
State Department of Ecology,
Army Corps of Engineers
Attorney General
Muckleshoot Indian Tribe

City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	Chang Residence Remodel
Proposal Address:	255 Shoreland Drive SE
Proposal Description:	Land Use review of a Critical Areas Land Use Permit proposing a 183 square foot reduction of the 25-foot shoreline structure setback from Lake Washington to construct a patio terrace and disturbance of 1,230 square feet of steep slope critical areas to construct decks and stairs. A shoreline exemption 11-111291-WD is associated with this application.
File Number:	11-111292-LO
Applicant:	Ying Chang, Property Owner
Decisions Included	Critical Areas Land Use Permit (Process II. 20.30P)
Planner:	Reilly Pittman, Land Use Planner
State Environmental Policy Act Threshold Determination:	**Determination of Non-Significance** Matthew Jackson for Carol V. Helland, Environmental Coordinator Development Services Department
Director's Decision:	**Approval with Conditions** Michael A. Brennan, Director Development Services Department By: Matthew Jackson for Carol V. Helland, Land Use Director

Application Date:	April 20, 2011
Complete Application:	July 6, 2011
Notice of Application Date:	July 14, 2011
Decision Publication Date:	August 18, 2011
Project/SEPA Appeal Deadline:	September 1, 2011

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Comments on State Environmental Policy Act (SEPA) Determinations can be made with or without appealing the proposal within the noted comment period for a SEPA Determination. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

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Attachments

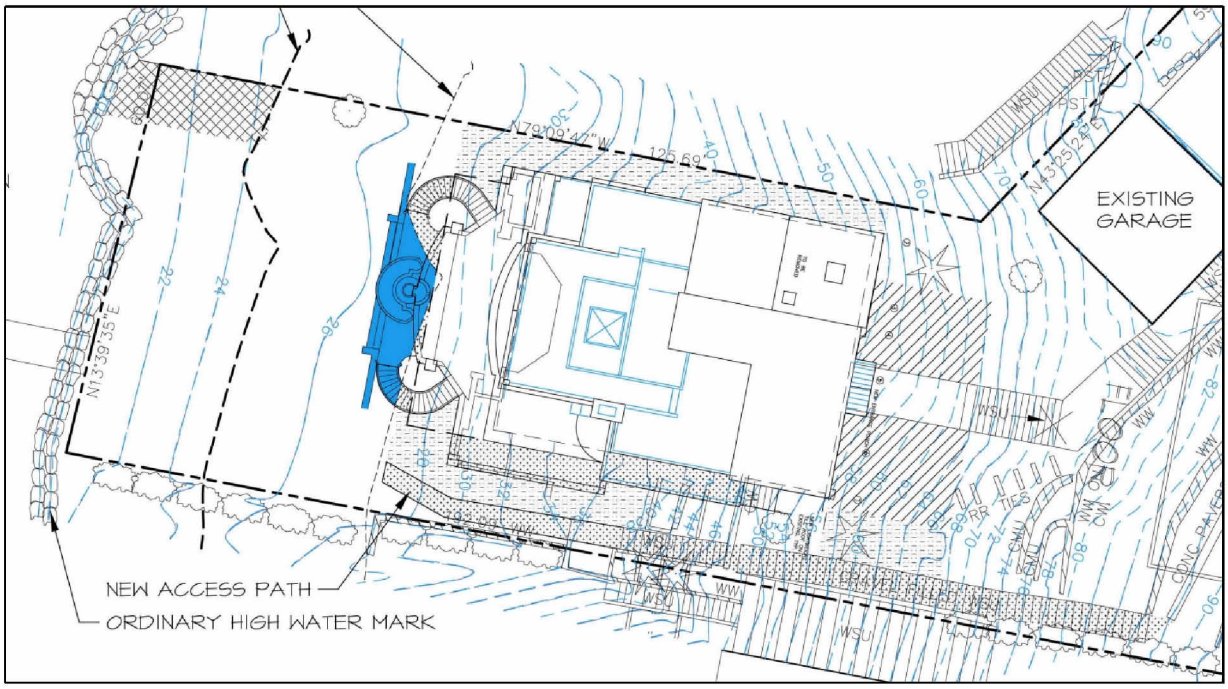
1. Site Plan – Enclosed
2. Geotech report prepared by PanGeo – Enclosed
3. Mitigation Planting Plan – Enclosed
4. Maintenance and Monitoring Plan – Enclosed
5. Forms and application materials – In File

I. Proposal Description

A code enforcement case on the property was opened in 2009 due to extensive improvements made to the house and property without permit approvals from the City of Bellevue. This Critical Areas Land Use Permit is required to allow:

- 183 square foot reduction of the 25-foot structure setback from the shoreline buffer of Lake Washington for a patio terrace.
- 1,230 square feet of disturbance within a steep slope critical area for construction of a stair access down the slope, replacement of decks which project over the steep slope, and removal of existing decks.
- All disturbances of critical areas and setbacks on site equal 1,413 square feet. See Figure 1 below for a plan showing all disturbances.

Figure 1



IMPACTS LEGEND		
	SHORELINE STRUCTURE SETBACK IMPACT	183 SF
	STEEP SLOPE IMPACT	716 SF
MITIGATION LEGEND		
	STEEP SLOPE RESTORATION (DECKS TO BE REMOVED)	514 SF

II. Site Description, Zoning, Land Use and Critical Areas

A. Site Description

The project site is located at 255 Shoreland Drive SE in the West Bellevue subarea of the City, SE quadrant of Section 31, Township 25 North, Range 5 East. Other single-family zoned and developed properties are located to the north and south. Shoreland Drive is

adjacent to the east and the property has frontage on Lake Washington to the west. The steep slopes on-site begin at the edge of Shoreland Drive and slope down west to the lowest point of the house where the grade flattens between the house and the lake. See figure 2 for existing site condition.

Figure 2

B. Zoning

The property is zoned R-4, single-family residential which allows the proposed single-family development.

C. Land Use Context

The property has a Comprehensive plan Land Use Designation of SF-H (Single Family High Density). The proposed improvements are consistent with this residential land use.

D. Critical Areas On-Site and Regulations

i. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provide a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

ii. Shorelines

Shorelines provide a variety of functions including shade, temperature control, water purification, woody debris recruitment, channel, bank and beach erosion, sediment delivery, and terrestrial-based food supply (Gregory et al. 1991; Naiman et al. 1993; Spence et al.1996).

Shorelines provide a wide variety of functions related to aquatic and riparian habitat, flood control and water quality, economic resources, and recreation, among others. Each function is a product of physical, chemical, and biological processes at work within the overall landscape. In lakes, these processes take place within an integrated system (ecosystem) of coupled aquatic and riparian habitats (Schindler and Scheuerell 2002). Hence, it is important to have an ecosystem approach which incorporates an understanding of shoreline functions and values.

iii. Shoreline Overlay District/Shoreline Substantial Development Permit

The property has frontage along Lake Washington and is within the Shoreline Overlay District which regulates areas within 200-feet of the Ordinary High Water Mark under the State Shoreline Management Act. The Shoreline Overlay District regulations (LUC 20.25E) allow for uses associated with single-family development which are exempt from the requirement for a Shoreline Substantial Development Permit. A shoreline exemption permit (11-111291-WD) has been applied for which is associated with the work under this approval.

iv. Critical Areas Overlay District/Critical Area Land Use Permit

A Critical Area Land Use Permit (CALUP) is required as the applicant is requesting to impact steep slope critical areas and reduce the shoreline setback. In addition to meeting general zoning requirements, the applicant is required to prepare a critical areas report and geotechnical report to show how the project is meeting performance standards for construction in geologically hazardous areas and decision criteria in LUC 20.25H and LUC 20.30P.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The R-4 zoning dimensional requirements found in LUC 20.20.010 apply to the proposed home construction. The plans submitted generally demonstrate conformance with zoning

dimensional standards, however conformance will be verified during building permit review. This Critical Areas Land Use Permit only allows the described modifications to critical areas and does not approve any non-conforming zoning dimensional standards. If the proposed construction is reviewed under the building permit and found to be non-conforming to requirements in LUC 20.20.010 the plans will be required to be changed. Revisions may require additional critical areas permitting if they increase the amount of disturbance or modification of critical areas and buffers. See Conditions of Approval in Section X of this report

B. Critical Areas Requirements LUC 20.25H:

The City of Bellevue Land Use Code Critical Areas Overlay District (LUC 20.25H) establishes performance standards and procedures that apply to development on any site which contains in whole or in part any portion designated as critical area, critical area buffer or structure setback from a critical area or buffer. The project area is within a steep slope critical area and shoreline setback and is subject to the performance standards found in LUC 20.25H as specified in the table below

Critical Area	**Geologic Hazard-Steep Slopes**	**Shorelines**
Performance Standards	20.25H.125 20.25H.145 20.25H.230	20.25E.080.Q

i. Consistency with LUC 20.25H.125

Development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

1. **Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;**
   The proposed stair access along the southern property line is the only improvement that has the potential to impact the existing grade. The stair is constructed to descend the existing grade and is does not change it. The proposed decks do not touch the ground and are replacing existing decks. The deck proposed for removal at the entry on the east façade will not change existing topography as it is constructed on posts and beams.

2. **Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;**
   The proposed development on the property is located in steep slopes does not change the existing landform or topography. The stair construction resulted in soil disturbance but does not change the topography.

3. **The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;**
   The project geotechnical engineer has found that the proposal "will not have adversely impacts to the subject and neighboring properties [sic]" (geotech, pg. 10). The present slope condition is disturbed by existing improvements. The proposed improvements are either replacing or are located where existing slope disturbance has already occurred.

4. **The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;**
   No retaining walls are proposed as there is no proposed grade change other than the stairway which is descending the existing grade.

5. **Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;**
   The proposed improvements within the steep slope critical area are the decks and stairs. The decks are not considered impervious if the decking boards have gaps and the ground beneath is not impervious. The stairs are covered in some rock but are also not entirely impervious. The impervious surfaces proposed are primarily located in the shoreline setback as part of the patio feature.

6. **Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;**
   Minimal grading will occur outside the building footprint beyond what is needed for the stair and patio. No site retention is proposed.

7. **Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;**
   The existing house is already providing support to the slope. According to the geotech report, the proposed patio in the shoreline setback is "supported by pin piles and will not have adverse impacts on the site stability and critical slopes" (pg. 10).

8. **On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;**

No construction is proposed in steep slope critical areas other than the decks which project from the existing structure and the stairs. These improvements do not alter the existing topography as a new structure would.

9. **On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and**
   No piled deck support structures are required for the proposed improvements.

10. **Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.**
    The project is providing mitigation planting for the impacts and restoration of the disturbances within the steep slope and shoreline setback. The mitigation planting plan (Attachment 3) is consistent with the City's planting templates for steep slope areas. The planting is required to be maintained and monitored for a period of at least five years per the submitted plan. An installation and maintenance surety will be required. The installation surety will be released after planting installation and the maintenance surety will be released after the five-year monitoring, assuming restoration has been successful. See Conditions of Approval in Section X of this report.

ii. Consistency With LUC 20.25H.230 and LUC 20.25H.145

Modification of steep slopes and the shoreline setback requires a critical areas report as part of the application for a Critical Areas Land Use Permit. The applicant has obtained the services of a qualified geotechnical engineering consultant to study the site and document the observed conditions. Staff has reviewed the following documents:

- Geotechnical Engineering Report revised April 4, 2011 prepared by PanGeo

This geotechnical analysis finds that the proposal will not "increase the threat of the site geological hazards" and will "mitigate site geological hazards" (pg. 11). The project is not altering the slope on-site other than to construct a stair access down the slope. Per LUC 20.30P.170, approval of projects to locate or modify buffers, setbacks, or the steep slopes critical areas require the proponent to complete a Hold Harmless Agreement with the City. The agreement is required to be completed prior to building permit issuance on a form provided by the City. See Conditions of Approval in Section X of this report.

i. Consistency With LUC 20.25E.080.Q

Residential Development Regulations. For purposes of this section, accessory structures shall include swimming pools, tennis courts, spas, greenhouses and similar facilities.

1. **No boat, houseboat or watercraft moored seaward of the ordinary high water mark shall be used as a permanent residence.**
   No proposal to use a boat as a residence is included in this approval.

2. **All structures, accessory buildings and ancillary facilities, other than those related to water use (such as moorage) shall be located outside of the shoreline critical area and shoreline critical area buffer, except stairs, handrails, and a trail or path providing access to the shoreline. The requirements of this subsection may be modified through a critical areas report, LUC 20.25H.230.**
   All improvements are located outside of the shoreline critical area and buffer. The patio proposed is located in the 25-foot structure setback from the edge of the buffer.

3. **Fences essentially parallel with the shoreline are not permitted within critical area buffer or critical area structure setback.**
   No new fences are proposed or approved.

4. **Maximum building height in those areas of the Shoreline Overlay District which are zoned for residential uses shall be 35 feet, except in land use districts where more restrictive height limitations exist.**
   Proposed structures are required to be 35 feet or less for a pitched roof or 30 feet or less for a flat roof as required in LUC 20.20.010. The maximum façade height of the home is limited to 40 feet or less for any façade. <u>See Conditions of Approval in Section X of this report.</u>

5. **All residential development shall be accompanied by a plan indicating methods for preserving shoreline vegetation and control of erosion during and following construction as required by City of Bellevue clearing and grading regulations, Chapter 23.76 BCC, and the Comprehensive Plan.**
   Erosion control is required by code and reviewed as part of the development permit by the Clearing and Grading Division.

IV. Public Notice and Comment

Application Date:	April 20, 2011
Public Notice (500 feet):	July 14, 2011
Minimum Comment Period:	June 28, 2011

Once the project application was determined complete the Notice of Application for this project was published the City of Bellevue Weekly Permit Bulletin on July 14, 2011. It was mailed to property owners within 500 feet of the project site.

Comments were submitted by the Muckleshoot Indian Tribe concerning the need to locate some of the proposed cedar trees to be within the 25-foot shoreline buffer measured from the Ordinary High Water Mark. Land Use staff agrees with locating 2 of the proposed cedar trees on the mitigation planting plan (Attachment 3) within 25-feet of the shoreline. In addition to the plants already proposed, the placement of the trees in this location will be appropriate mitigation for the shoreline setback reduction proposed but also for the unpermitted cutting of a large significant cedar tree within close proximity to the lake. The

submitted mitigation plan identifies the removal of this tree as a "loss" of habitat that requires mitigation (Mitigation Plan, pg. 2). A proposed goal of the mitigation plan is to increase habitat value of the site. The entire slope is essentially disturbed. The site is denuded of significant vegetation and lacks a native understory, and the site is not connected to any larger areas of vegetation coverage. As a result, planting on the shoreline has more potential to improve habitat than does planting on the slope or along the property line. The loss of the large cedar tree is a greater habitat impact to the shoreline than the proposed improvements are to the slope. Locating some of the cedar trees in the shoreline buffer is needed if habitat improvement is claimed as a goal for the proposed mitigation. See Section X for a related condition of approval.

V. Summary of Technical Reviews

A. Clearing and Grading

The Clearing and Grading Division of the Development Services Department has reviewed the proposed site development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development and has approved the application.

VI. State Environmental Policy Act (SEPA)

The environmental review indicates no probability of significant adverse environmental impacts occurring as a result of the proposal. The Environmental Checklist submitted with the application adequately discloses expected environmental impacts associated with the project. The City codes and requirements, including the Clear and Grade Code, Utility Code, Land Use Code, Noise Ordinance, Building Code and other construction codes are expected to mitigate potential environmental impacts. Therefore, issuance of a Determination of Non-Significance (DNS) is the appropriate threshold determination under the State Environmental Policy Act (SEPA) requirements.

A. Earth, Air, and Water

No dredging, withdrawals, diversions, or discharges are anticipated from the proposed improvements in the steep slope and shoreline setback. Erosion and sedimentation control requirements and BMPs will be reviewed by the Clearing and Grading Department as part of a clearing and grading permit.

B. Animals

Lake Washington contains coho (Species of Concern), chinook (Threatened), steelhead (Threatened), and potentially contains bull trout (Threatened). No structures are proposed in the lake or buffer. Vegetation will be planted as mitigation for the proposed slope impacts and shoreline setback reduction.

C. Plants

Existing ornamental planting, invasive species, and lawn will be impacted by the improvements in the steep slope and shoreline setback. One significant cedar tree was already removed during the unpermitted work. The resulting planting will establish native

trees, shrubs, and ground covers on the slope and within the shoreline buffer of Lake Washington.

D. Noise

The site is adjacent to single-family residences whose residents are most sensitive to disturbance from noise during evening, late night and weekend hours when they are likely to be at home. Construction noise will be limited by the City's Noise Ordinance (Chapter 9.18 BCC) which regulates construction hours and noise levels. See Section X for a related condition of approval.

VII. Changes to Proposal Due to Staff Review

Staff required revisions to the geotech report, critical areas report, and planting plan. Based on comments received and review staff has required 2 cedar trees be planted within the 25-foot shoreline buffer as mitigation for the tree removal which already occurred.

VIII. Decision Criteria

A. 20.25H.255.B Critical Areas Report – Decision Criteria – General

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. **The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;**
   The proposed plan improves the shoreline by replacing existing area of lawn with native planting along the shoreline and installs 2 cedar trees within 25 feet of the shoreline. The trees installed will provide an opportunity for habitat improvement on the site. The proposed planting in the slope will improve slope stability and prevent erosion.

2. **The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;**
   The steep slope on this site is disturbed by existing improvements, landscaping, and invasive species. There is also a lack of significant trees on the site. The proposal includes the planting of several cedar trees, some of which will be located in close proximity to the lake. These trees will provide opportunity for future habitat usage as perch trees for avian species that are frequently found near the lake. Given the conditions of the site and adjacent properties the improvement of habitat potential on this site is the most important function which can be restored on the site.

3. **The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;**

Stormwater quality will be improved by the planting on the steep slope and removal of existing structures in the slope..

4. **Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;**
   The mitigation planting will be maintained and monitored for a period of at least five years as described in Attachment 4. An installation and maintenance surety will be required based on an estimate of the installed cost of planting which includes labor, materials, contingency, and monitoring for 5 years. The installation surety will be released after planting installation and the maintenance surety will be released after the five-year monitoring, assuming restoration has been successful. See Conditions of Approval in Section X of this report.

5. **The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and**
   The modifications in this proposal are not detrimental to the functions and values of the slopes on or off-site and are not inconsistent with what other adjacent properties already have constructed.

6. **The resulting development is compatible with other uses and development in the same land use district.**
   The proposed improvements are compatible with residential uses.

B. 20.30P.140 Critical Area Land Use Permit Decision Criteria – Decision Criteria

The Director may approve, or approve with modifications an application for a Critical Area Land Use Permit if:

1. **The proposal obtains all other permits required by the Land Use Code;**
   The applicant must obtain a building permit and any other development permits. See Conditions of Approval in Section X of this report.

2. **The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;**
   The proposed improvements are located in already disturbed locations or are replacing existing improvements.

3. **The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;**
   As discussed in Section III of this report, the applicable performance standards of LUC Section 20.25H are being met.

4. **The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;**
   The site is served by adequate public facilities which are not impacted.

5. **The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and**
   The mitigation planting is proposed to be consistent with the City's planting templates for steep slopes. The planting and conditions in this staff report make the project consistent with LUC 20.25H.210.

6. **The proposal complies with other applicable requirements of this code.**
   As discussed in this report, the proposal complies with all other applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including SEPA, Land Use Code consistency, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the 183 square foot reduction of the 25-foot structure setback from Lake Washington, impact to 716 square feet of steep slope critical areas for a stair access and accessory decks, and removal of 514 square feet of existing decks in the steep slope. **Approval of this Critical Areas Land Use Permit does not constitute a permit for construction. A building permit, clear and grade permit, and/or utility permit is required and all plans are subject to review for compliance with applicable City of Bellevue codes and standards.**

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a building permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code- BCC 23.76	Savina Uzunow, 425-452-7860
Land Use Code- BCC Title 20	Reilly Pittman, 425-452-4350
Noise Control- BCC 9.18	Reilly Pittman, 425-452-2973

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. **Building Permit:** Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. Application for a building permit or other required permits must be submitted and approved. Plans submitted as part of either permit application shall be consistent with the activity permitted under this approval.

Authority: Land Use Code 20.30P.140
Reviewer: Reilly Pittman, Development Services Department

2. **Conformance with LUC 20.20.010:** This approval does not guarantee the project for conformance with zoning requirements in LUC 20.20. Additional critical areas permitting may be required if any changes required by zoning will increase impacts to critical areas.

   Authority: Land Use Code 20.20.010; Land Use Code 20.30P.140
   Reviewer: Reilly Pittman, Development Services Department

3. **Height Limits:** The proposed changes to the house which increase height are required to be less than 35 feet in height measured from the average existing grade. No façade shall exceed 40 feet from where the building wall meets existing grade to the highest point visible on each façade.

   Authority: Land Use Code 20.20.010; Land Use Code 20.25E.080
   Reviewer: Reilly Pittman, Development Services Department

4. **Trees in Shoreline Buffer:** At least 2 of the proposed western red cedar trees shall be planted within 25 feet of the Ordinary High Water Mark as mitigation for prior removal of a mature significant cedar tree. The planting plan submitted with the building permit application shall be revised to show the location selected for the 2 trees.

   Authority: Land Use Code 20.25H.230, Land Use Code 20.25H.255
   Reviewer: Reilly Pittman, Development Services Department

5. **Maintenance and Monitoring:** The submitted monitoring plan with goals, objectives, performance standards, and schedule (Attachment 4) is required to be carried out for 5 years. The yearly monitoring reports should be mailed to:

   Environmental Planning Manager
   Development Services Department
   City of Bellevue
   PO Box 90012
   Bellevue, WA 98009-9012

   Authority: Land Use Code 20.30P.140
   Reviewer: Reilly Pittman, Development Services Department

6. **Cost Estimate:** A cost estimate of the installed cost of the planting which includes the cost of plants, labor, materials, is required to be submitted with the building permit. The cost estimate shall also include the cost to carry our maintenance and monitoring for 5 years. This cost estimate will be used to determine the amounts of the installation and maintenance sureties required.

Authority: Land Use Code 20.25H.255
Reviewer: Reilly Pittman, Development Services Department

7. **Installation Surety**: The installation surety is required prior to building permit issuance. The installation surety is required to be 150 percent of the cost estimate. This surety will be released after Land Use inspection of the mitigation planting installation.

   Authority: Land Use Code 20.30P.140
   Reviewer: Reilly Pittman, Development Services Department

8. **Maintenance Surety:** The maintenance surety is required to be held until completion of the 5-year monitoring. Release of this surety is contingent upon successful monitoring based on the established goals and objectives. The amount of the surety must cover 100 percent of the cost for maintenance and monitoring for 5 years. Land Use inspection of the planting after 5-years is required to release the surety.

   Authority: Land Use Code 20.30P.140
   Reviewer: Reilly Pittman, Development Services Department

9. **Land Use Inspection:** Following installation of planting the applicant shall contact Land Use staff to inspect the planting area and release the installation surety. At the end of 5 years inspection by Land Use staff is required to release the maintenance surety. Staff will need to find that the plants are in a healthy and growing condition and the mitigation plan is successful per the established performance standards in the monitoring plan.

   Authority: Land Use Code 20.30P.140
   Reviewer: Reilly Pittman, Development Services Department

10. **Hold Harmless Agreement:** The applicant shall submit a hold harmless agreement in a form approved by the City Attorney which releases the City from liability for any damage arising from the location of improvements within a critical area buffer in accordance with LUC 20.30P.170. The hold harmless agreement is required to be recorded with King County prior to building permit issuance. Staff will provide the applicant with the hold harmless form.

    Authority: Land Use Code 20.30P.170
    Reviewer: Reilly Pittman, Development Services Department

11. **Noise Control:** Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: Reilly Pittman, Development Services Department

Attachment 1:
Site Plan

CHANG RESIDENCE
REMODEL & ADDITION

255 SHORELAND DR. SE
BELLEVUE WA 98044

LEGAL DESCRIPTION:
LOT 12, MEYDENBAUER POINT, ACCORDING TO THE PLAT THEREOF RECORDED IN VOL. 94 OF THE PLATS PAGES 54&55 IN KING CO. WA.

SQ. FOOTAGE	
BUILDINGS	
GARAGE:	535 SQ. FT.
HOUSE & DECKS:	2,848 SQ. FT.
WALKWAYS ABOVE 30"	241 SQ. FT.
TOTAL:	3,624 SQ. FT.
SITE AREA	
TOTAL:	14,849 SQ. FT
LESS CRITICAL SLOPE AREA	(3,620 × .1)
	11,229 SQ. FT.
LOT COVERAGE:	24.4%

$\frac{3620}{11,229} = 32.3\%$

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-

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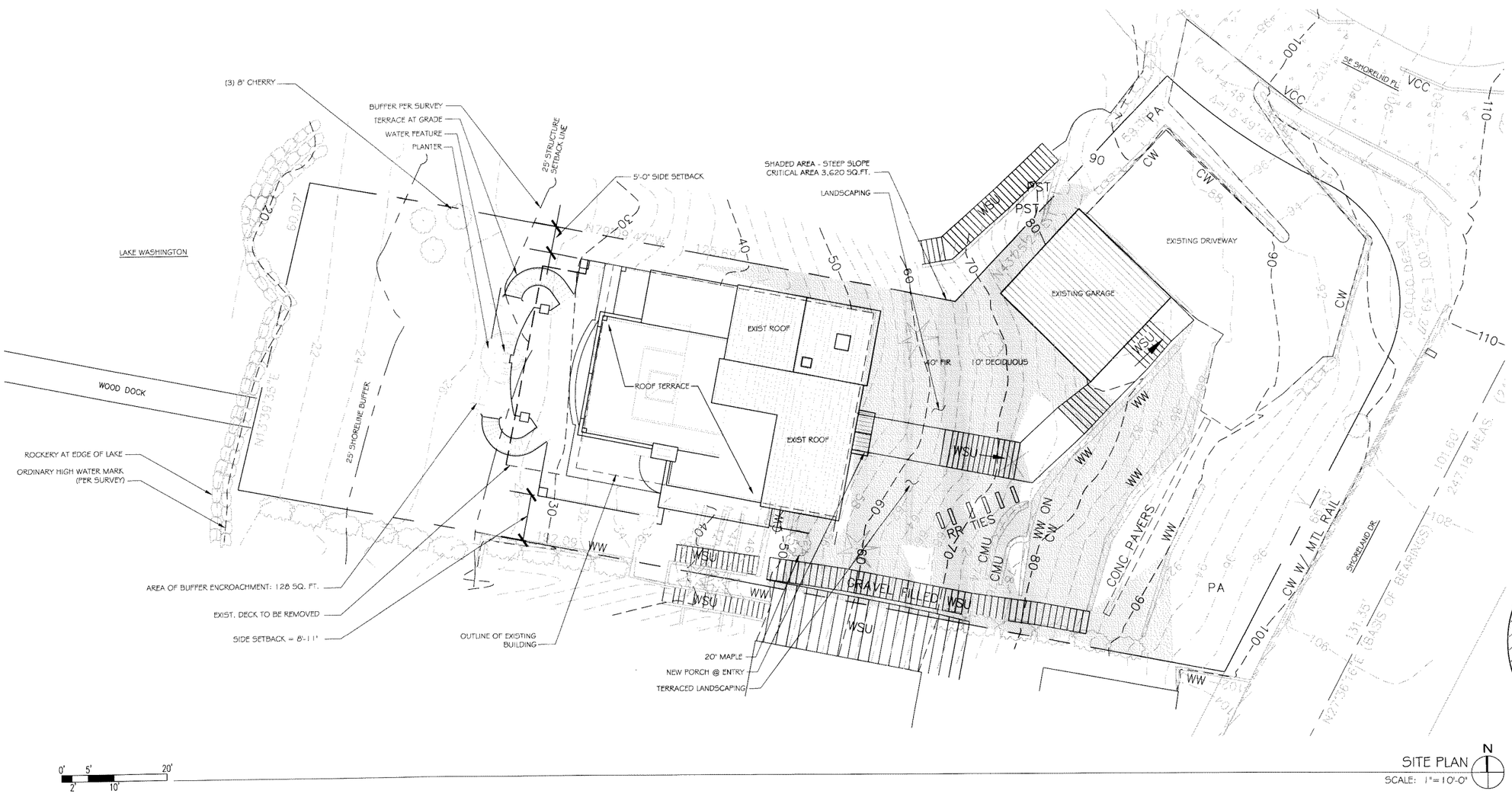
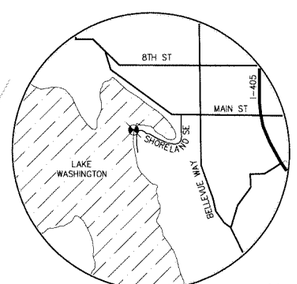
KUNIHOLM



SITE PLAN
SCALE: 1"=10'-0"



VICINITY MAP
SCALE: NTS

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CHANG RESIDENCE
REMODEL & ADDITION
255 SHORELAND DR. SE
BELLEVUE, WA 98044

Received
JUL 01 2011
Permit Processing

DATE: 6 / 27 / 11

A0.0

Attachment 2:
Geotech Report

PanGEO
INCORPORATED
Geotechnical & Earthquake
Engineering Consultants

April 4, 2011
Revised on May 27, 2011
File No. 10-093.100

Mr. Ying Chang
255 Shoreland Drive SE
Bellevue, WA 98004

Subject: **Revised Geotechnical Engineering Report**
Proposed Improvements
255 Shoreland Drive SE, Bellevue, Washington

Dear Mr. Chang,

As requested, PanGEO, Inc. has completed a geotechnical engineering study to assist you and your project team with the design and construction of the proposed improvements at the above-referenced site. This study was performed in general accordance with our mutually agreed scope of work outlined in our proposal dated February 10, 2011, and was subsequently approved on March 11, 2011. Our service scope included reviewing readily available geologic and geotechnical data, reviewing preliminary project plans, drilling two geotechnical borings and excavating two hand borings, conducting a site reconnaissance, and developing the conclusions and recommendations presented in this report.

SITE AND PROJECT DESCRIPTION

The subject site is located at 255 Shoreland Drive SE, on the Lake Washington shore, in Maydenbauer Bay, Bellevue, Washington (see Vicinity Map, Figure 1). The property is approximately L-shaped, and is bordered to the west by Lake Washington, to the east by Shoreland Drive SE, and to the south and north by existing single-family dwellings (see Figure 2). An existing house and a detached garage currently occupy the site (see Figure 2). Based on a review of the topographic survey map and site plans, the site grade generally descends from east to west with gradients ranging from 15 to 60 percent. The total vertical relief from the east property line to the west property line is about 80 feet. The area west of the house is generally flat.

Based on the information provided, the proposed improvements will be limited to the areas located roughly between the existing entry of the house to about 30 feet from the shore of Lake Washington (see Figure 2), and will include the following elements:

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- Repair the existing entry bridge (the unpermitted deck being constructed around the entryway will be removed and disturbed ground will be restored);
- Add additional interior space to the upper floor and remodel the building siding;
- Construct a new terrace and two curved stairs on the west side of the house. This area is currently occupied by an unpermitted wood deck that will be removed to allow for terrace construction. The new terrace and stairs will slightly expand beyond the west edge of the unpermitted deck;
- Add a new 4-story moment frame to reinforce the existing house structure for seismic condition;
- Construct new footings under the existing skirting walls and a new wall along the west side of the house as part of the planned structural improvements;
- Remove the small decks on the south side of the house and replace with the new decks with the same footprint; and
- Construct a stair on the slope along the south property line (the stair had already been constructed without a permit).

The conclusions and recommendations in this report are based on our understanding of the proposed development, which is in turn based on the project information provided. If the above project description is incorrect, or the project information changes, we should be consulted to review the recommendations contained in this study and make modifications, if needed.

SUBSURFACE EXPLORATIONS

Our subsurface exploration program consisted of drilling two test borings (BH-1 and BH-2) and excavating two hand holes (HH-1 and HH-2) at the subject site. Test borings BH-1 and BH-2 were drilled to depths of about 16½ and 26½ feet below the existing grade, respectively, on June 10, 2010, using a hand-operated portable drill rig owned and operated by CN Drilling of Seattle, Washington. The hand borings HH-1 and HH-2 were excavated to depths of about 4 and 6 feet, respectively, below the surface using hand augers on March 17, 2011. The approximate locations of the test borings and hand holes were taped in the field from on-site features, and are plotted on Figure 2.

The portable drill rig was equipped with 4-inch outside diameter hollow stem augers. Soil samples were obtained from the borings at 2½- and 5-foot depth intervals in general accordance with Standard Penetration Test (SPT) sampling methods (ASTM test method D-1586) in which the samples are obtained using a 2-inch outside diameter split-spoon sampler. The sampler was driven into the soil a distance of 18 inches using a 140-pound weight freely falling a distance of

30 inches. The number of blows required for each 6-inch increment of sampler penetration was recorded. The number of blows required to achieve the last 12 inches of sample penetration is defined as the SPT N-value. The N-value provides an empirical measure of the relative density of cohesionless soil, or the relative consistency of fine-grained soils.

An engineer and an engineering geologist from PanGEO were present during the field exploration to observe the drilling, assist in sampling, to describe and document the soil samples obtained from the test borings, and to conduct the hand boring excavations. The soil samples from test borings were described and field classified in general accordance with the symbols and terms outlined in Figure 3, and the summary boring logs are included as Figures 4 through 7.

SITE GEOLOGY AND SUBSURFACE CONDITIONS

SITE GEOLOGY

The Geologic Map of King County (Booth, et. al. 2007) mapped the surficial geologic unit at the subject site as Advance Outwash (Map Unit Qva). Advance Outwash deposit is described by Booth, et al. as moderately to well sorted, slightly oxidized sand and gravel that had been overridden by glacial ice. Advance Outwash typically exhibit low compressibility and high strength characteristics in its undisturbed state.

SOIL CONDITIONS

The following is a description of the soils encountered at the site. Please refer to the summary boring logs (Figures 4 through 7) for a detailed description of the conditions encountered at each boring location.

> ***UNIT 1: Fill*** – Approximately 1 and 4½ feet of loose to very loose, slightly silty to silty sand with some roots and gravel was encountered in BH-1 and BH-2, respectively, which were drilled east of the house. In hand borings HH-1 and HH-2 drilled west of the house, approximately 1½ feet of loose silty sand was encountered below the surface. We interpret this near-surface unit as fill.
>
> ***UNIT 2: Colluvium*** – Below the fill, approximately 3½ and 9 feet of soft to medium stiff, slightly sandy to sandy silt was encountered in BH-1 and BH-2, respectively. We interpret this unit to be colluvium, or slope wash that was deposited at site as a result of mass waste from the upper slope area. This unit was not encountered in hand borings HH-1 and HH-2.
>
> ***UNIT 3 – Advanced Outwash:*** Below the colluvium, Boring BH-1 encountered a layer of dense silty fine sand of approximately 8½ feet thick. This soil unit is consistent with the mapped Advanced Outwash deposits. This unit was not encountered in boring BH-2, and hand borings HH-1 and HH-2.

UNIT 4 – Glaciolacustrine: Below the fill in HH-1 and HH-2, stiff, silt and sandy silt were encountered and extended to the maximum depths of the hand borings to about 4 and 6 feet below the surface. Very stiff to hard, silt to silty clay was also encountered below Advance Outwash in BH-1 and colluvium in BH-2. This unit extended to at least the bottom of the borings at about 16½ and 26½feet below the surface in BH-1 and BH-2, respectively. We interpret this soil unit as Glaciolacustrine deposits.

GROUNDWATER

Groundwater was not encountered in the borings BH-1 and BH-2 during drilling. However, groundwater was measured at a depth of about 12½ feet approximately one hour after drilling in BH-1, perched on the sand/silt interface. Perched groundwater was observed at about one foot below the surface in HH-1 and HH-2, atop of the silt layer. It should be noted that groundwater elevations and seepage rates are likely to vary depending on the season, local subsurface conditions, and other factors. Groundwater levels and seepage rates are normally highest during the winter and early spring.

GEOTECHNICAL DESIGN RECOMMENDATIONS

GEOLOGIC HAZARDS ASSESSMENT

We conducted a geologic hazards assessment for the proposed development as part of our study. The assessment includes evaluation of Landslide Hazards, Seismic (Earthquake) Hazards, Coal Mine Hazards, and Erosion Hazards. Based on our review of the City of Bellevue's Geologic Hazards Map and site topographic map, the project site contains steep slopes (40 percent and greater) and is mapped as an erosion hazard area. The west edge of the site is also mapped within a seismic hazard area but is not mapped as a coal mine hazards area. The following sections contain our assessment of potential Geologic Hazards and their possible effects on the proposed improvements.

Landslide Hazards and Steep Slopes

The site is not mapped as a landslide hazard area in accordance with City of Bellevue's Geologic Hazards Map, but contains slopes of 40% or greater. As part of our study, we conducted a site reconnaissance to observe signs of past slope movement and instability. Based on observations made during our site reconnaissance, we did not observe any noticeable signs of slope instability. Based on our observations of ground features and the results of our field exploration, it is our opinion that the site is globally stable in its current configurations. Based on our understanding of the proposed improvements, it is also our opinion that the proposed project will not adversely impact the overall stability of the subject and surrounding properties, provided that the

recommendations presented in this report are properly incorporated into the design and construction of the project.

Erosion Hazards Assessment

The site is mapped within a potential erosion control area in accordance with the City of Bellevue's Geologic Map. Based on the borings drilled and hand borings excavated, the site soils encountered exhibit low to moderate erosion potential when disturbed and left unprotected. However, in our opinion, the erosion hazards at the site can be effectively mitigated with the best management practice during construction and with properly designed and implemented landscaping for permanent erosion control. During construction, the temporary erosion hazard can also be effectively managed with an appropriate erosion and sediment control plan, including but not limited to installing silt fence at the construction perimeter, placing quarry spalls or hay bales at the disturbed and traffic areas, covering stockpile soil or cut slopes with plastic sheets, constructing a temporary drainage pond to control surface runoff and sediment trap, placing rocks at the construction entrance, etc.

Permanent erosion control measures should be applied to the disturbed areas as soon as feasible. These measures may include but not limited to planting and hydroseeding. The use of permanent erosion control mat may also be considered in conjunction with planting/hydroseeding to protect the soils from erosion.

Seismic Hazards

The City of Bellevue and King County Code defines seismic hazard areas as those areas subject to severe risk of earthquake damage as a result of seismically induced settlement or soil liquefaction. According to the City of Bellevue's Geologic Hazards Map, the majority of the site is not designated a seismic hazard area except a small strip along Lake Washington. Based on the stiff and fine-grained nature of the site soils encountered at shallow depths during our field exploration, in our opinion, the potential for soil liquefaction and associated seismic settlement at the site during a design earthquake is low. As such, special design considerations associated with soil liquefaction are not required.

CRITICAL AREAS AND SETBACKS

New improvements on the house – An unpermitted deck is located on the west side of the house (see Plate 1 on following page). We understand that this deck was constructed to replace a low deck at the same location. The current design calls for a new terrace which will be located roughly at the same location as the unpermitted deck. Other planned improvements on the house will include new footings under the existing skirting walls, a new footing on the west side of the house, and replacement of two small decks on the south side of the house. These proposed

improvements will be located within the steep slope and setback areas. However, improvements on the existing house including the new wall footings, a new terrace, two stairs, and two decks should be considered as necessary repair and remodel to the existing house. The new structures will be supported by pin piles to minimize the ground disturbance in the steep slope areas. These proposed improvements, provided they are properly designed, will not have adverse impacts on the site stability. As such, in our opinion, these improvements may be constructed as planned and be exempted from the critical area design standard.

Plate 1. View of the house and unpermitted deck, looking east.

Plate 2. View of the unpermitted stairway along the south property line, looking down toward west.

Stairway along the south property line – An unpermitted stairway was constructed in the steep slope along the south property line (see Figure 2). The stairway was constructed with pressure-treated timbers which are anchored into ground with wood posts. The steps of the stairway are backfilled with crushed rock (see Plate 2). In our opinion, this wood stairway should be considered as a landscape improvement. Based on the subsurface conditions and our field observations, the stairway is currently stable and construction of the stairway will not have adverse impacts on the site stability. In our opinion, the as-built stairway was constructed closely following the existing ground contours, and presents the minimum modifications of the steep slope for the at-grade stairway construction.

SEISMIC DESIGN PARAMETERS

The following provides seismic design parameters for the site that are in conformance with the 2006 and later editions of the International Building Code (IBC), which specifies a design earthquake having a 2% probability of occurrence in 50 years (return interval of 2,475 years), and the 2002 USGS seismic hazard maps:

Site Class	Spectral Acceleration at 0.2 sec. (g) S_S	Spectral Acceleration at 1.0 sec. (g) S_1	Site Coefficients		Design Spectral Response Parameters		Control Periods (sec.)		Design PGA (S_{DS}/2.5)
			F_a	F_v	S_{DS}	S_{D1}	T_O	T_S	
C	1.40	0.47	1.00	1.33	0.93	0.42	0.09	0.45	0.37

The spectral response accelerations were obtained from the USGS Earthquake Hazards Program Interpolated Probabilistic Ground Motion website (2002 data) for the project latitude and longitude.

FOUNDATIONS

New foundations will be needed to support the proposed terrace, steel moment frame, and the existing skirting walls. Because of the variable nature of the foundation soil conditions anticipated, use of conventional shallow footings will require more earthwork than pin pile foundations and may likely cause undesirable differential foundations movement. As such, it is our opinion that the new structural elements outlined above should be supported by a deep foundation system consisting of small diameter steel piles (pin piles). The following sections present our foundation design recommendations.

Pin Pile Foundations

Based on the site access conditions, in our opinion, the pin pile foundations should consist of 2-inch diameter, Schedule 80, galvanized, steel piles. Allowable axial compression capacity of 6 kips may be used for the 2-inch diameter pin piles. Tensile capacity of the pin piles should be ignored. Penetration resistance required to achieve the capacities will be determined based on the hammer used as discussed in the following sections. Total and differential foundation settlements are anticipated to be on the order of about ½ inch or less.

The required pile length in order to develop the recommended pile capacity is expected to vary, depending on the depth of the bearing soil at the foundation locations. For planning and cost estimating purposes, a pile length of about 15 feet may be assumed for the site. The actual pile lengths should be determined during construction based on the actual driving conditions.

Pile splices may be made with compression fitted sleeve pipe couplers (see Typical Splicing Detail on Page 8). Splicing using welding of pipe joints should not be used, as welds will typically be broken during driving.

2-inch diameter steel pipe piles are typically installed using a 90-pound jackhammer or a 140-pound air hammer. The quality of a pin pile foundation is dependent in part on the experience and professionalism of the installation company. Therefore, a qualified contractor with pin pile driving experience on similar projects should be selected to install the piles.

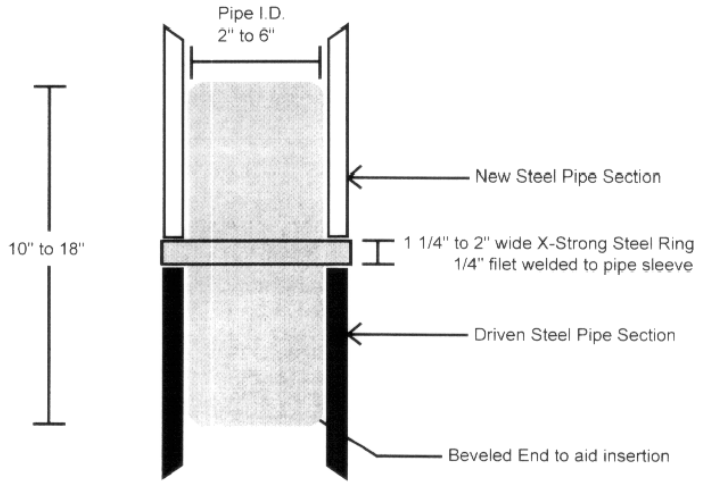
We recommend that the following specifications be included on the foundation plan:

1. 2-inch pin piles shall consist of galvanized Schedule-80, ASTM A-53 Grade "B" pipe.

2. 2-inch piles shall be driven to refusal with a minimum 90-pound jackhammer or a 140-pound air hammer. Refusal is defined as less than 1 inch of penetration in 60 seconds of continuous driving with a minimum 90-pound jackhammer or a 140-pound air hammer. If different type hammers are used, the appropriate driving/refusal criteria can be determined based on the load test results.

3. Piles shall be driven in nominal sections and connected with compression fitted sleeve couplers (see detail below – Courtesy of McDowell Pile King, Kent, WA).

4. The geotechnical engineer of record or his/her representative shall provide full time observation of pile installation.



Typical Pin Pile Splicing Detail

Lateral Resistance: The capacity of vertical pin pipes to resist lateral loads is very limited and should be ignored in design. Lateral forces from wind or seismic loading should be resisted by the passive earth pressures acting against the pile caps and below-grade walls or batter piles. Passive resistance values may be determined using an equivalent fluid weight of 150 pounds per cubic foot (pcf) for sloping grounds or 300 pcf for the level ground. This value includes a safety factor of about 1.5 assuming that properly compacted granular fill will be placed adjacent to and

surrounding the pile caps and grade beams. Alternatively, pin piles may be battered no flatter than 4V:1H to resist the lateral loads.

RESPONSE TO CITY OF BELLEVUE COMMENTS

As part of our study, we reviewed City of Bellevue's Pre-Development Review letters dated February 4 and May 16, 2011, and examined the critical areas comments contained in the letters. The following are City's comments and our response:

1. *Comments 1: Any areas of temporary disturbance and permanent disturbance caused by the construction of the stairway, decks, or any other recent improvements*

   Response: Based on our field observations, the areas of ground disturbance by recent improvements include the unpermitted deck area east of the house around the entry bridge, the unpermitted deck area west of the house, and the stairway areas along the south property line.

2. *Comment 2: Expansion of the house beyond the foundation noted on the survey submitted*

   Response: We understand that the new terrace and stairs on the west side of the house will be expanded slightly beyond the original house and deck footprint. Please refer to the architectural plans.

3. *Each Item in LUC 20.25H.125, LUC 20.25H.140, LUC 20.25H.145, and LUC 20.25H.255B*

   The following are City of Bellevue's Land Use Code (LUC) 20.25H.125, LUC 20.25H.140, LUC 20.25H.145 and our response (in red) to each item:

   LUC 20.25H.125 Performance standards – Landslide hazards and steep slopes.
   In addition to generally applicable performance standards set forth in LUC 20.25H.055 and 20.25H.065, development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

   A. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography; - The structures and improvements are designed to minimize alterations to the natural contour.

   B. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation; - The proposed improvements will not change the existing critical slopes.

C. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties; - The proposed improvements will not have adversely impacts to the subject and neighboring properties.

D. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall; - The existing natural slopes will be maintained and no artificial slopes are planned for the project.

E. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer; - The proposed improvements are designed to minimize the impervious surface.

F. Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria; - The proposed improvements are designed to minimize the site topographic modifications.

G. Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation; - Building foundation walls are utilized to the maximum extent possible for the project. The proposed terrace walls will be supported by pin piles and will not have adverse impacts on the site stability and critical slopes.

J. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210. – Disturbed areas will be restored per Land Use Code.

LUC 20.25H.140 Critical areas report – Additional provisions for landslide hazards and steep slopes.

B. Area Addressed in Critical Area Report.

In addition to the general requirements of LUC 20.25H.230, the following areas shall be addressed in a critical areas report for geologically hazardous areas:

1. Site and Construction Plans. The report shall include a copy of the site plans for the proposal and a topographic survey; - Site plan provided.

2. Assessment of Geological Characteristics. The report shall include an assessment of the geologic characteristics of the soils, sediments, and/or rock of the project area and potentially affected adjacent properties, and a review of the site history regarding landslides, erosion, and prior grading. Soils analysis shall be accomplished in accordance with accepted classification systems in use in the region; - Site geology and subsurface data assessed.

3. Analysis of Proposal. The report shall contain a hazards analysis including a detailed description of the project, its relationship to the geologic hazard(s), and its potential impact upon the hazard area, the subject property, and affected adjacent properties; and – Geological hazards evaluated in the report.

4. Minimum Critical Area Buffer and Building Setback. The report shall make a recommendation for a minimum geologic hazard critical area buffer, if any, and minimum building setback, if any, from any geologic hazard based upon the geotechnical analysis. – Minimum critical area and building setback recommendations provided in the report.

LUC 20.25H.145 Critical areas report – Approval of modification.
Modifications to geologic hazard critical areas and critical area buffers shall only be approved if the Director determines that the modification:

A. Will not increase the threat of the geological hazard to adjacent properties over conditions that would exist if the provisions of this part were not modified; - The proposed improvements will not increase the threat of the site geological hazards.

B. Will not adversely impact other critical areas; - The proposed improvements will not have adversely impacts on the site critical areas.

C. Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the provisions of this part were not modified; - The proposed improvements will mitigate the site geologic hazards.

D. Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington; - The geologic hazards and geotechnical elements of the project were evaluated by a qualified civil engineer licensed in the State of Washington.

E. The applicant provides a geotechnical report prepared by a qualified professional demonstrating that modification of the critical area or critical area buffer will have no adverse impacts on stability of any adjacent slopes, and will not impact stability of any existing structures. Geotechnical reporting standards shall comply with requirements developed by the Director in City of Bellevue Submittal Requirements Sheet 25, Geotechnical Report and Stability Analysis Requirements, now or as

hereafter amended; - The geotechnical report was prepared by a qualified engineer in general accordance with the City of Bellevue's submittal requirements.

F. Any modification complies with recommendations of the geotechnical support with respect to best management practices, construction techniques or other recommendations; and – The geotechnical elements of the proposed project should be constructed in general accordance with the recommendations contained in the geotechnical report.

LUC 20.25H.255B – The proposed improvements will not have adverse impacts on the site stability and represents minimum alteration and modification to the steep slope and buffer areas. In our opinion, the proposed improvements are considered feasible from a geotechnical standpoint.

4. *An examination of how the proposed improvements represent the minimum necessary modification of the steep slope*

Response: The unpermitted deck east of the house will be removed and the disturbed ground will be restored to pre-construction condition. All new foundations will consist of pin piles to minimize ground disturbance. In our opinion, the proposed foundation system represents the minimum necessary ground disturbance.

As previously stated, the wood stairway along the south property line is currently stable and construction of the stairway will not have adverse impacts on the site stability. The unpermitted stairway along the south property line, in our opinion, presents the minimum disturbance to the steep slope for the at-grade construction as the stair closely follow the contour of the ground surface. We believe that removing the as-built stairway would result in more ground disturbance. As such, from a geotechnical standpoint, it is our opinion that as-built stairway may be left in place. However, we recommend any exposed/bare ground be properly vegetated to prevent future erosion.

GENERAL EARHWORK CONSIDERATIONS

SITE PREPARATION

Site preparation for the proposed improvements includes removing unpermitted decks, and excavations to the design subgrade. All stripped surface materials should be properly disposed off-site or be "wasted" on site in non-structural landscaping areas. Following site clearing and excavations, the adequacy of the subgrade where structural fill, foundations, slabs, or pavements are to be placed should be verified by a representative of PanGEO.

TEMPORARY EXCAVATIONS AND SHORING

As currently planned, we anticipate that construction of the new terrace and north foundations will involve excavations on the order of 3 to 4 feet or less. We anticipate the excavations to encounter mostly medium stiff to very stiff silt. All temporary excavations deeper than 4 feet should be sloped or shored. All temporary excavations should be performed in accordance with Part N of WAC (Washington Administrative Code) 296-155. The contractor is responsible for maintaining safe excavation slopes and/or shoring.

Based on the soil conditions at the site, in general, it is our opinion that temporary excavations may be sloped 1H:1V or flatter. The cut slopes may also need to be flattened in the wet reasons and should be covered with clear plastic sheets. We also recommend that heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within a distance equal to 1/3 the slope height from the top of any excavation.

The temporary excavations and cut slopes should be re-evaluated in the field during construction based on actual observed soil conditions, and may need to be flattered in the wet reasons and should be covered with plastic sheets. The cut slopes should be covered with plastic sheets in the raining season. We also recommend that heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within a distance equal to 1/3 the slope height from the top of any excavation.

MATERIAL REUSE

In our opinion, the on-site fine-grained soil (silt) should not be used as structural but may be used as general fill in the non-structural landscape areas. Structural fill, if needed, should consist of imported well-grade granular material, such as WSDOT Gravel Borrow. Well-graded recycled concrete may also be considered as a source of structural fill. Use of recycled concrete as structural fill should be approved by the project geotechnical engineer. If use of the existing sandy soils is planned, the excavated soil should be stockpiled and protected with plastic sheeting to prevent softening from rainfall.

STRUCTURAL FILL PLACEMENT AND COMPACTION

In the context of this report, structural fill is defined as compacted fill placed under footings, concrete stairs and landings, and slabs, or other load-bearing areas. Structural fill should be moisture conditioned to within about 3 percent of optimum moisture content, placed in loose, horizontal lifts less than 8 inches in thickness, and systematically compacted to a dense and relatively unyielding condition and to at least 95 percent of the maximum dry density, as determined using test method ASTM D 1557.

Depending on the type of compaction equipment used and depending on the type of fill material, it may be necessary to decrease the thickness of each lift in order to achieve adequate

compaction. PanGEO can provide additional recommendations regarding structural fill and compaction during construction.

WET WEATHER EARTHWORK

In our opinion, the proposed site construction may be accomplished during wet weather (such as in winter) without adversely affecting the site stability. However, earthwork construction performed during the drier summer months likely will be more economical. Winter construction will require the implementation of best management erosion and sedimentation control practices to reduce the chance of off-site sediment transport. Some of the site soils contain a high percentage of fines and are moisture sensitive. Any footing subgrade soils that become softened either by disturbance or rainfall should be removed and replaced with structural fill, Controlled Density Fill (CDF), or lean-mix concrete. General recommendations relative to earthwork performed in wet conditions are presented below:

- Site stripping, excavation and subgrade preparation should be followed promptly by the placement and compaction of clean structural fill or CDF;
- The size and type of construction equipment used may have to be limited to prevent soil disturbance;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Bales of straw and/or geotextile silt fences should be strategically located to control erosion and the movement of soil;
- Structural fill should consist of less than 5% fines; and
- Excavation slopes should be covered with plastic sheets.

SURFACE DRAINAGE AND EROSION CONSIDERATIONS

Surface runoff can be controlled during construction by careful grading practices. Typically, this includes the construction of shallow, upgrade perimeter ditches or low earthen berms in conjunction with silt fences to collect runoff and prevent water from entering excavations or to prevent runoff from the construction area from leaving the immediate work site. Temporary erosion control may require the use of hay bales on the downhill side of the project to prevent water from leaving the site and potential storm water detention to trap sand and silt before the water is discharged to a suitable outlet. All collected water should be directed under control to a positive and permanent discharge system.

Permanent control of surface water should be incorporated in the final grading design. Adequate surface gradients and drainage systems should be incorporated into the design such that surface

runoff is directed away from structures. Potential problems associated with erosion may also be reduced by establishing vegetation within disturbed areas immediately following grading operations.

ADDITIONAL SERVICES

To confirm that our recommendations are properly incorporated into the design and construction of the proposed project, PanGEO should be retained to conduct a review of the final project plans and specifications, and to monitor the construction of geotechnical elements. The City of Bellevue, as part of the permitting conditions, will also require geotechnical construction inspection services. PanGEO can provide you a cost estimate for construction monitoring services at a later date.

We anticipate that the following additional services will be required:

- Review final project plans and specifications
- Verify implementation of erosion control measures;
- Evaluate and confirm the stability of temporary excavation slopes;
- Observe foundation construction including pin pile installation;
- Confirm the adequacy of the compaction of structural backfill; and
- Other consultation as may be required during construction

Modifications to our recommendations presented in this report may be necessary, based on the actual conditions encountered during construction.

CLOSURE

We have prepared this report for Mr. Ying Chang, and the project design team. Recommendations contained in this report are based on a site reconnaissance, a subsurface exploration program, review of pertinent subsurface information, and our understanding of the project. The study was performed using a mutually agreed-upon scope of work.

Variations in soil conditions may exist between the locations of the explorations and the actual conditions underlying the site. The nature and extent of soil variations may not be evident until construction occurs. If any soil conditions are encountered at the site that are different from those described in this report, we should be notified immediately to review the applicability of our recommendations. Additionally, we should also be notified to review the applicability of our recommendations if there are any changes in the project scope.

The scope of our work does not include services related to construction safety precautions. Our recommendations are not intended to direct the contractors' methods, techniques, sequences or procedures, except as specifically described in our report for consideration in design.

Additionally, the scope of our work specifically excludes the assessment of environmental characteristics, particularly those involving hazardous substances. We are not mold consultants nor are our recommendations to be interpreted as being preventative of mold development. A mold specialist should be consulted for all mold-related issues.

This report has been prepared for planning and design purposes for specific application to the proposed project in accordance with the generally accepted standards of local practice at the time this report was written. No warranty, express or implied, is made.

This report may be used only by the client and for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both off and on-site), or other factors including advances in our understanding of applied science, may change over time and could materially affect our findings. Therefore, this report should not be relied upon after 24 months from its issuance. PanGEO should be notified if the project is delayed by more than 24 months from the date of this report so that we may review the applicability of our conclusions considering the time lapse.

It is the client's responsibility to see that all parties to this project, including the designer, contractor, subcontractors, etc., are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk. Any party other than the client who wishes to use this report shall notify PanGEO of such intended use and for permission to copy this report. Based on the intended use of the report, PanGEO may require that additional work be performed and that an updated report be reissued. Noncompliance with any of these requirements will release PanGEO from any liability resulting from the use this report.

We appreciate the opportunity to be of service.

Sincerely,

Michael H. Xue, P.E.
Senior Geotechnical Engineer

Siew L. Tan, P.E.
Principal Geotechnical Engineer

Enclosures:

Figure 1	Vicinity Map
Figure 2	Site and Exploration Plan
Figure 3	Terms and Symbols for Boring and Test Pit Logs
Figure 4	Log of Test Borings BH-1
Figure 5	Log of Test Borings BH-2
Figure 6	Log of Hand Borings HH-1
Figure 7	Log of Hand Borings HH-2

REFERENCES

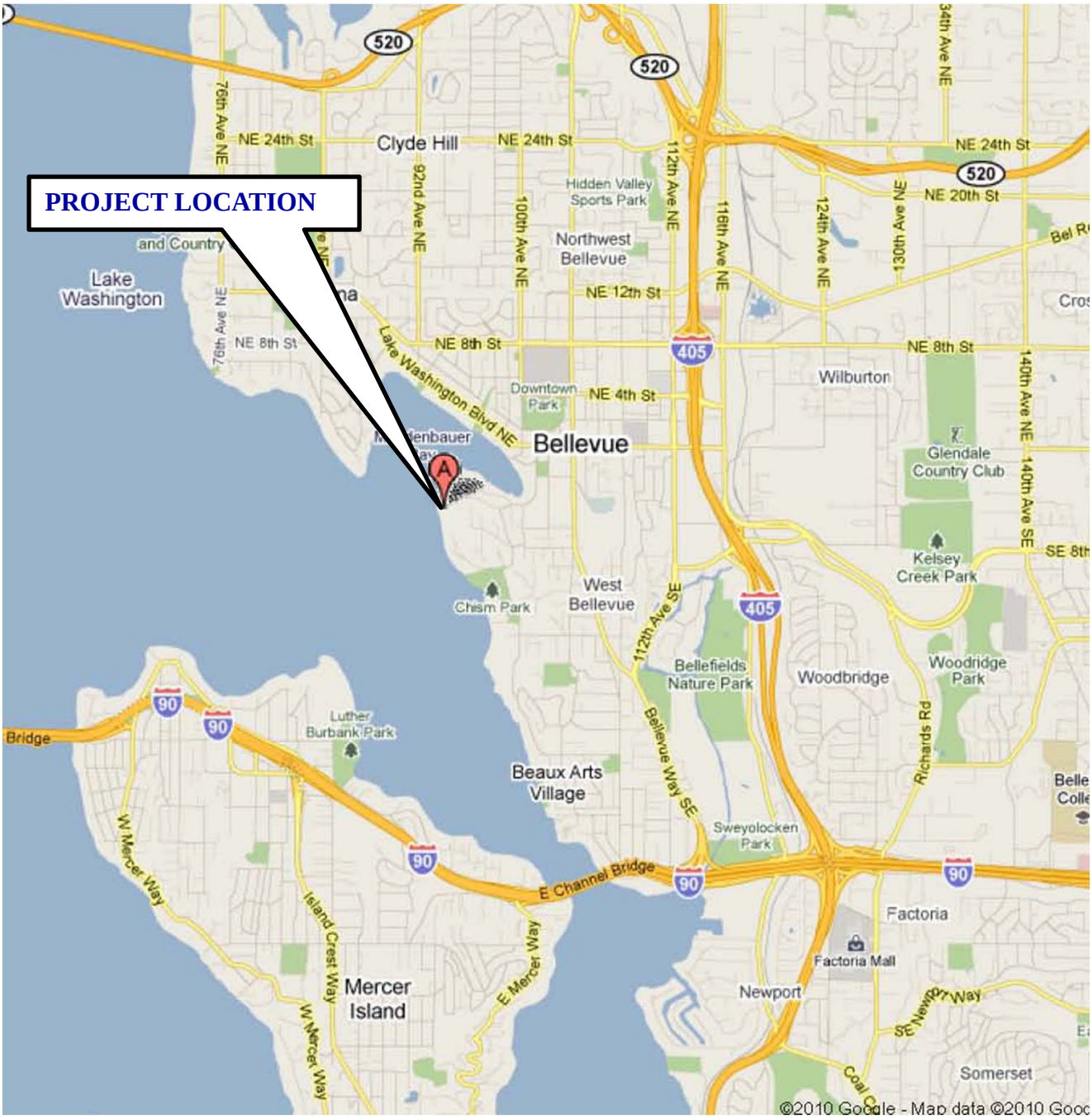
Booth, D. B., Troost, K.G., Wisher, A. P., 2007, *The Geologic Map of King County, Washington, scale 1:100,000.*

City of Bellevue GIS Map, 2007, *Surface Geology and Soils with Severe Erosion Potential Map*.

City of Bellevue GIS Map, 2007, *Geologic Hazards Map.*

International Code Council, 2006, *International Building Code (IBC).*

WSDOT, 2010, *Standard Specifications for Road, Bridges, and Municipal Construction*.



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Reference: Google Map

PanGEO INCORPORATED	**Proposed Improvements** **255 Shoreland Drive SE** **Bellevue, Washington**	**VICINITY MAP**
		Project No. 10-093 — Figure No. 1

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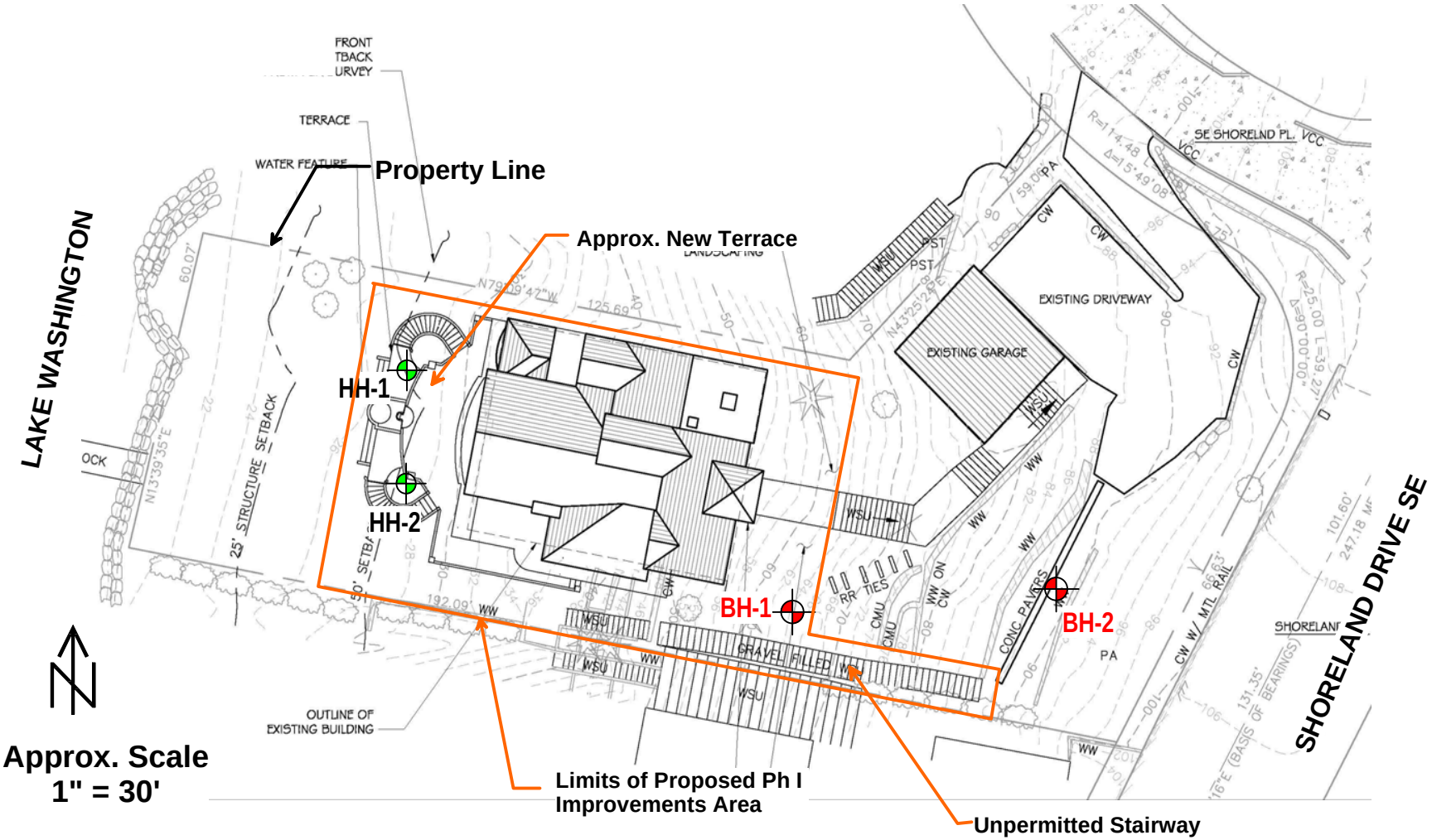

Approx. Scale
1" = 30'

Note: Base map modified from Site Plan prepared by Tom Kuniholm Architects.

Legend:

BH-1 Approx. Test Boring Location

HH-1 Approx. Test Boring Location

PanGEO INCORPORATED

Proposed Improvements
255 Shoreland Drive SE
Bellevue, Washington

SITE AND EXPLORATION PLAN

Project No.	Figure No.
10-093	2

RELATIVE DENSITY / CONSISTENCY

SAND / GRAVEL			SILT / CLAY		
Density	SPT N-values	Approx. Relative Density (%)	Consistency	SPT N-values	Approx. Undrained Shear Strength (psf)
Very Loose	<4	<15	Very Soft	<2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Med. Dense	10 to 30	35 - 65	Med. Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	>50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	>30	>4000

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		GROUP DESCRIPTIONS	
Gravel 50% or more of the coarse fraction retained on the #4 sieve. Use dual symbols (eg. GP-GM) for 5% to 12% fines.	GRAVEL (<5% fines)	GW	Well-graded GRAVEL
		GP	Poorly-graded GRAVEL
	GRAVEL (>12% fines)	GM	Silty GRAVEL
		GC	Clayey GRAVEL
Sand 50% or more of the coarse fraction passing the #4 sieve. Use dual symbols (eg. SP-SM) for 5% to 12% fines.	SAND (<5% fines)	SW	Well-graded SAND
		SP	Poorly-graded SAND
	SAND (>12% fines)	SM	Silty SAND
		SC	Clayey SAND
Silt and Clay 50%or more passing #200 sieve	Liquid Limit < 50	ML	SILT
		CL	Lean SILT
		OL	Organic SILT or CLAY
	Liquid Limit > 50	MH	Elastic SILT
		CH	Fat CLAY
		OH	Organic SILT or CLAY
Highly Organic Soils		PT	PEAT

Notes: 1. Soil exploration logs contain material descriptions based on visual observation and field tests using a system modified from the Uniform Soil Classification System (USCS). Where necessary laboratory tests have been conducted (as noted in the "Other Tests" column), unit descriptions may include a classification. Please refer to the discussions in the report text for a more complete description of the subsurface conditions.

2. The graphic symbols given above are not inclusive of all symbols that may appear on the borehole logs. Other symbols may be used where field observations indicated mixed soil constituents or dual constituent materials.

DESCRIPTIONS OF SOIL STRUCTURES

Layered:	Units of material distinguished by color and/or composition from material units above and below	Fissured:	Breaks along defined planes
Laminated:	Layers of soil typically 0.05 to 1mm thick, max. 1 cm	Slickensided:	Fracture planes that are polished or glossy
Lens:	Layer of soil that pinches out laterally	Blocky:	Angular soil lumps that resist breakdown
Interlayered:	Alternating layers of differing soil material	Disrupted:	Soil that is broken and mixed
Pocket:	Erratic, discontinuous deposit of limited extent	Scattered:	Less than one per foot
Homogeneous:	Soil with uniform color and composition throughout	Numerous:	More than one per foot
		BCN:	Angle between bedding plane and a plane normal to core axis

COMPONENT DEFINITIONS

COMPONENT	SIZE / SIEVE RANGE	COMPONENT	SIZE / SIEVE RANGE
Boulder:	> 12 inches	Sand	
Cobbles:	3 to 12 inches	Coarse Sand:	#4 to #10 sieve (4.5 to 2.0 mm)
Gravel		Medium Sand:	#10 to #40 sieve (2.0 to 0.42 mm)
Coarse Gravel:	3 to 3/4 inches	Fine Sand:	#40 to #200 sieve (0.42 to 0.074 mm)
Fine Gravel:	3/4 inches to #4 sieve	Silt	0.074 to 0.002 mm
		Clay	<0.002 mm

TEST SYMBOLS

for In Situ and Laboratory Tests listed in "Other Tests" column.

CBR	California Bearing Ratio
Comp	Compaction Tests
Con	Consolidation
DD	Dry Density
DS	Direct Shear
%F	Fines Content
GS	Grain Size
Perm	Permeability
PP	Pocket Penetrometer
R	R-value
SG	Specific Gravity
TV	Torvane
TXC	Triaxial Compression
UCC	Unconfined Compression

SYMBOLS

Sample/In Situ test types and intervals

- 2-inch OD Split Spoon, SPT (140-lb. hammer, 30" drop)
- 3.25-inch OD Spilt Spoon (300-lb hammer, 30" drop)
- Non-standard penetration test (see boring log for details)
- Thin wall (Shelby) tube
- Grab
- Rock core
- Vane Shear

MONITORING WELL

- Groundwater Level at time of drilling (ATD)
- Static Groundwater Level
- Cement / Concrete Seal
- Bentonite grout / seal
- Silica sand backfill
- Slotted tip
- Slough
- Bottom of Boring

MOISTURE CONTENT

Dry	Dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water

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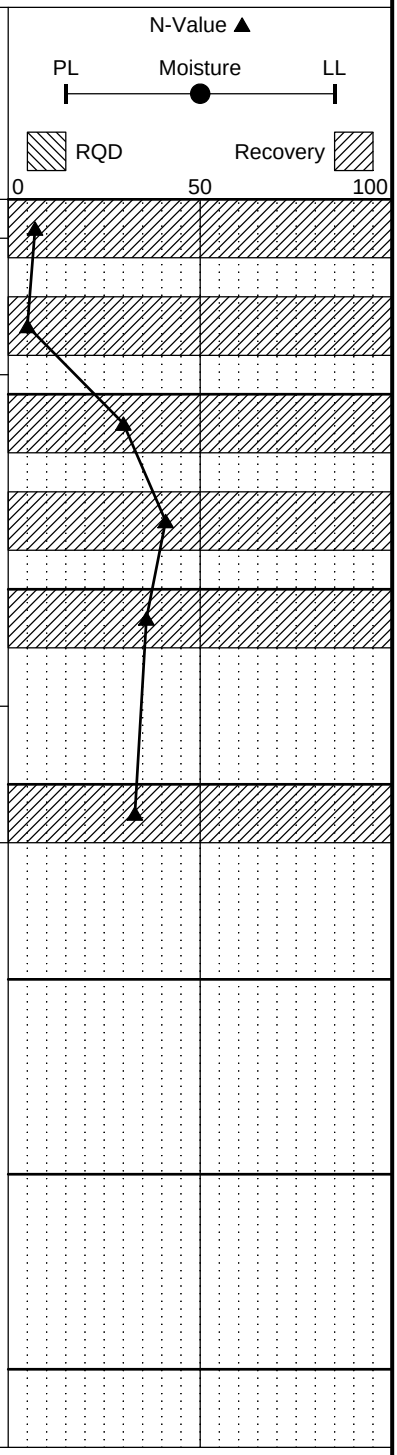
Terms and Symbols for Boring and Test Pit Logs

Figure 3

Project:	255 Shoreland Drive SE, Bellevue, WA	Surface Elevation:	~63'
Job Number:	10-093	Top of Casing Elev.:	na
Location:	Seattle, Washington	Drilling Method:	HSA - Acker Rig
Coordinates:	Northing: , Easting:	Sampling Method:	SPT - Cathead

Depth, (ft)	Sample No.	Sample Type	Blows / 6 in.	Other Tests	Symbol	MATERIAL DESCRIPTION
0	S-1		2 3 4			Loose, dark brown, slightly silty SAND/sandy SILT, trace gravel, some roots, moist **(Topsoil/Fill).**
	S-2		2 2 3			Medium stiff, light gray, sandy SILT/silty fine SAND, trace roots, very moist **(Colluvium?).**
5	S-3		8 14 16			Dense, gray, silty fine SAND, moist **(Advance Outwash).**
	S-4		9 17 24			
10	S-5		11 15 21			
						Hard, blueish gray, SILT, trace fine sand, moist **(Glaciolacustrine).**
15	S-6		10 15 18			
						Bottom of boring at about 16.5 feet below surface. Groundwater was not observed when drilling was completed but was measured at about 12.5 feet one hour after drilling.
20						
25						
30						



Completion Depth:	16.5ft
Date Borehole Started:	6/10/10
Date Borehole Completed:	6/10/10
Logged By:	HMX
Drilling Company:	CN Drilling

Remarks: Boring was drilled with a hand portable drill rig. Standard Penetration Test (SPT) sampler driven with a 140 lb. safety hammer operated with a rope and cathead mechanism.

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LOG OF TEST BORING BH-1

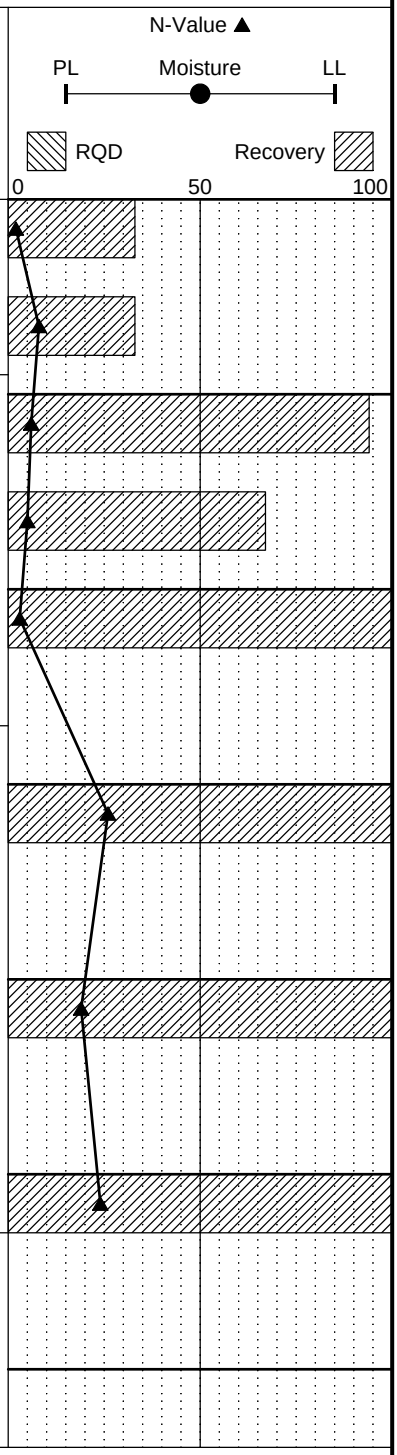
Figure 4

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BOREHOLE 10-093 BORING LOGS.GPJ PANGEO.GDT 7/30/10

Project:	255 Shoreland Drive SE, Bellevue, WA	Surface Elevation:	~88.5'
Job Number:	10-093	Top of Casing Elev.:	na
Location:	Seattle, Washington	Drilling Method:	HSA - Acker Rig
Coordinates:	Northing: , Easting:	Sampling Method:	SPT - Cathead

Depth, (ft)	Sample No.	Sample Type	Blows / 6 in.	Other Tests	Symbol	MATERIAL DESCRIPTION
0	S-1		1 1 1			Very loose, dark brown-brown, silty sand, trace roots, some gravel, very moist **(Fill).**
	S-2		2 4 4			-becomes brown silty SAND, trace gravel, loose, moist.
5	S-3		2 2 4			Medium stiff, brown-tan, slightly sandy SILT, moist **(Colluvium?).**
	S-4		1 2 3			-becomes tan-brown SILT, some fine sand, iron oxide stains, medium stiff, very moist.
10	S-5		1 2 1			-becomes gray-blue SILT, trace fine sand and gravel, slightly fractures, soft, very moist.
15	S-6		6 9 17			Very stiff, light gray to gray, SILT, trace sand, rusty iron oxide stains, moist **(Glaciolacustrine).**
20	S-7		5 7 12			-becomes blue, clayey SILT/silty CLAY, very stiff, moist.
25	S-8		6 9 15			-becomes gray-blue, SILT to clayey SILT, trace iron oxide stains, very stiff, moist.
						Bottom of boring at about 26.5 feet below surface. Groundwater was not observed during drilling.
30						



Completion Depth:	26.5ft
Date Borehole Started:	6/10/10
Date Borehole Completed:	6/10/10
Logged By:	HMX
Drilling Company:	CN Drilling

Remarks: Boring was drilled with a hand portable drill rig. Standard Penetration Test (SPT) sampler driven with a 140 lb. safety hammer operated with a rope and cathead mechanism.

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Phone: 206.262.0370

LOG OF TEST BORING BH-2

Figure 5

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BOREHOLE 10-093 BORING LOGS.GPJ PANGEO.GDT 7/30/10

Project:	255 Shoreland Drive SE, Bellevue, WA	Surface Elevation:	~29'
Job Number:	10-093	Top of Casing Elev.:	
Location:	Seattle, Washington	Drilling Method:	Hand Auger
Coordinates:	Northing: , Easting:	Sampling Method:	

Depth, (ft)	Sample No.	Sample Type	Blows / 6 in.	Other Tests	Symbol	MATERIAL DESCRIPTION
0						Loose, gray, slightly silty SAND/sandy SILT, trace gravel, some roots, very moist to wet **(Fill).**
						Medium stiff to stiff, gray, SILT/clayey SILT, blocky texture, occosional organics, very moist **(Glaciolacustrine).**
2						
4						-becomes stiff to very stiff.
						Bottom of hand boring at about 4.5 feet below surface. Perched groundwater seepage was observed at about one foot below teh surface.
6						
8						
10						
12						
14						
16						

N-Value ▲

PL — Moisture — LL

RQD — Recovery

0 — 50 — 100

Completion Depth:	4.0ft
Date Borehole Started:	3/17/11
Date Borehole Completed:	3/17/11
Logged By:	NES
Drilling Company:	

Remarks: Boring was drilled with a hand auger. Groundwater seepage was observed at about one foot below the surface.

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LOG OF TEST BORING HH-1

Figure 6

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BOREHOLE 10-093 BORING LOGS.GPJ PANGEO.GDT 3/30/11

Project:	255 Shoreland Drive SE, Bellevue, WA	Surface Elevation:	~29'
Job Number:	10-093	Top of Casing Elev.:	
Location:	Seattle, Washington	Drilling Method:	Hand Auger
Coordinates:	Northing: , Easting:	Sampling Method:	

Depth, (ft)	Sample No.	Sample Type	Blows / 6 in.	Other Tests	Symbol	MATERIAL DESCRIPTION
0						Loose, brown-gray, silty SAND, trace gravel, some roots, very moist to wet **(Fill).**
						Medium stiff to stiff, gray, SILT/sandy SILT, trace fine gravel and organics, very moist **(Glaciolacustrine).**
2						
4						-becomes stiff to very stiff.
6						Bottom of hand boring at about 6 feet below surface. Perched groundwater was observed at one foot below the surface.
8						
10						
12						
14						
16						

N-Value ▲

PL Moisture LL

RQD Recovery

0 50 100

Completion Depth:	6.0ft
Date Borehole Started:	3/17/11
Date Borehole Completed:	3/17/11
Logged By:	NES
Drilling Company:	

Remarks: Boring was drilled with a hand auger. Groundwater seepage was observed at about one foot below the surface.

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Phone: 206.262.0370

LOG OF TEST BORING HH-2

Figure 7

The stratification lines represent approximate boundaries. The transition may be gradual.

LOG OF BOREHOLE 10-093 BORING LOGS.GPJ PANGEO.GDT 3/30/11

Attachment 3
Mitigation Planting Plan

25' SHORELINE STRUCTURE SETBACK

25' SHORELINE BUFFER

LAKE WASHINGTON

WOOD DOCK

N13°39'35"E

N79°09'47"W 125.69'

NEW ACCESS PATH

ORDINARY HIGH WATER MARK

EXISTING GARAGE

EXISTING DRIVEWAY

N43°25'24"E

59.06'

R=114.48'
Δ=15°49'08"

R=25.00'
Δ=90°00'00"
L=39.27'

SE SHORELAND PL.

SHORELAND DR.
131.35'
(BASIS OF BEARINGS)

N27°36'16"E

101.60'
247.18 MEAS. (247.19' PLAT)

66.63
CW W/ MTL RAIL

1205 SQ FT

CONC PAVERS

GRAVEL FILLED WELL

RR TIES

CMU

WW ONLY

CW

WSU

WW

PA

PST

VCC

PLAN LEGEND

- PROPERTY LINE
- 25' SHORELINE BUFFER
- 25' SHORELINE STRUCTURE SETBACK

IMPACTS LEGEND

SHORELINE STRUCTURE SETBACK IMPACT	183 SF
STEEP SLOPE IMPACT	716 SF

MITIGATION LEGEND

STEEP SLOPE RESTORATION (DECKS TO BE REMOVED)	514 SF
SHORELINE MITIGATION	183 SF
STEEP SLOPE MITIGATION	716 SF

GRAPHIC SCALE
(IN FEET)

0 10 20 30 40 60

SCALE: 1:20

N

PROJECT 4055

DRAWN SO

SCALE AS NOTED

DATE 06-24-11

REVISED

1/3

FIGURE 1: OVERVIEW PLAN
MITIGATION PLAN
CHANG RESIDENCE
KING COUNTY, WASHINGTON

Altmann Oliver Associates, LLC
AOA Environmental Planning & Landscape Architecture
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

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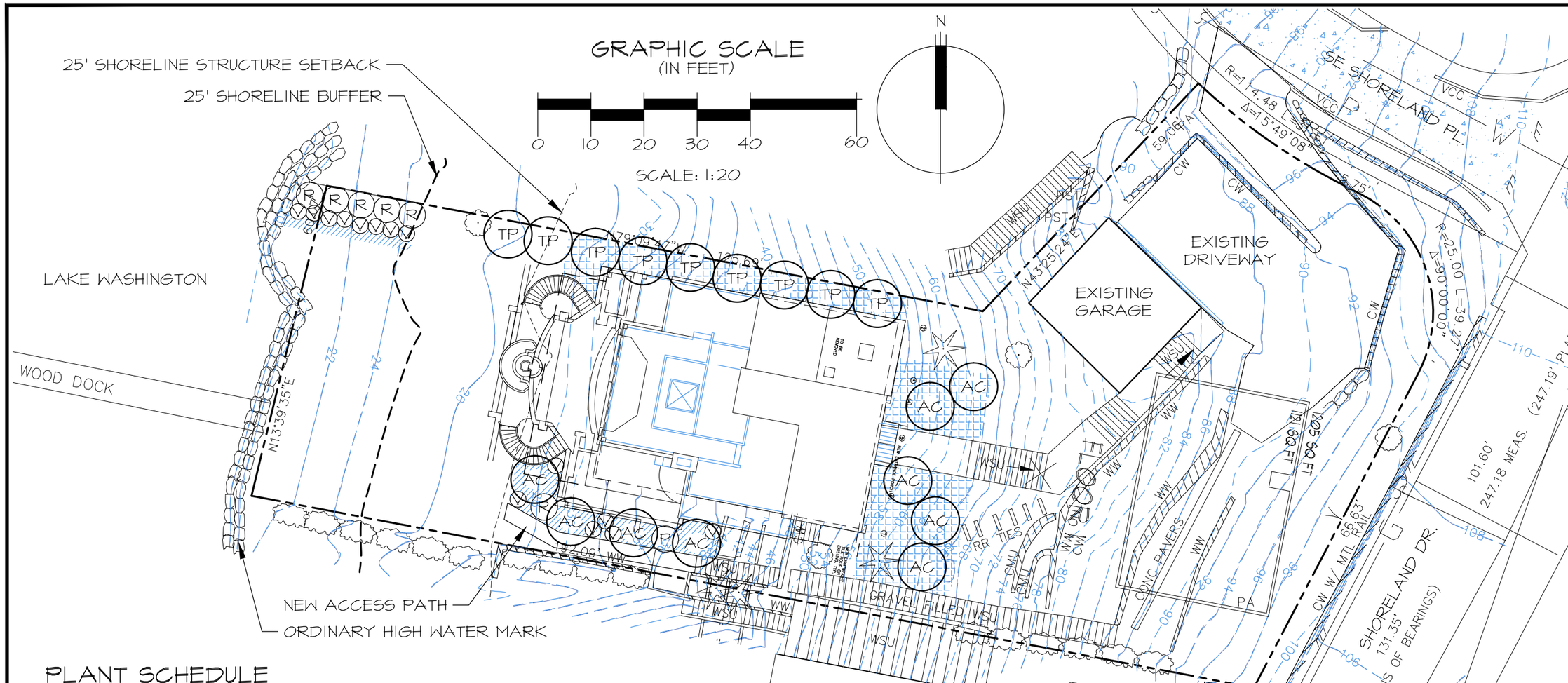


PLANT SCHEDULE

TREES

KEY	SCIENTIFIC NAME	COMMON NAME	SPACING	QTY.	SIZE	NOTES
AC	ACER CIRCINATUM	VINE MAPLE	AS SHOWN	9	2 GAL.	MULTI-STEM (3 MIN.)
TP	THUJA PLICATA	WESTERN RED CEDAR	AS SHOWN	9	10' HT.	FULL & BUSHY

SHRUBS

KEY	SCIENTIFIC NAME	COMMON NAME	SPACING	QTY.	SIZE	NOTES
P	PHILADELPHUS LEWISII	MOCK ORANGE	5' O.C.	1	1 GAL.	MULTI-CANE (3 MIN.)
R	RIBES SANGUINEUM	RED CURRANT	5' O.C.	6	1 GAL.	MULTI-CANE (3 MIN.)
V	VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	3' O.C.	14	1 GAL.	FULL & BUSHY

GROUNDCOVER

KEY	SCIENTIFIC NAME	COMMON NAME	SPACING	QTY.	SIZE	NOTES
	ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK	2' O.C.	43	1 GAL.	FULL & BUSHY
	POLYSTICHUM MUNITUM	SWORD FERN	3' O.C.	107	1 GAL.	FULL & BUSHY

PROJECT 4055
DRAWN SO
SCALE AS NOTED
DATE 06-24-11
REVISED
2/3

FIGURE 2: PLANTING PLAN
MITIGATION PLAN
CHANG RESIDENCE
KING COUNTY, WASHINGTON

Altmann Oliver Associates, LLC
AOA Environmental Planning & Landscape Architecture
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4569

4055-MIT-06-24-11.dwg

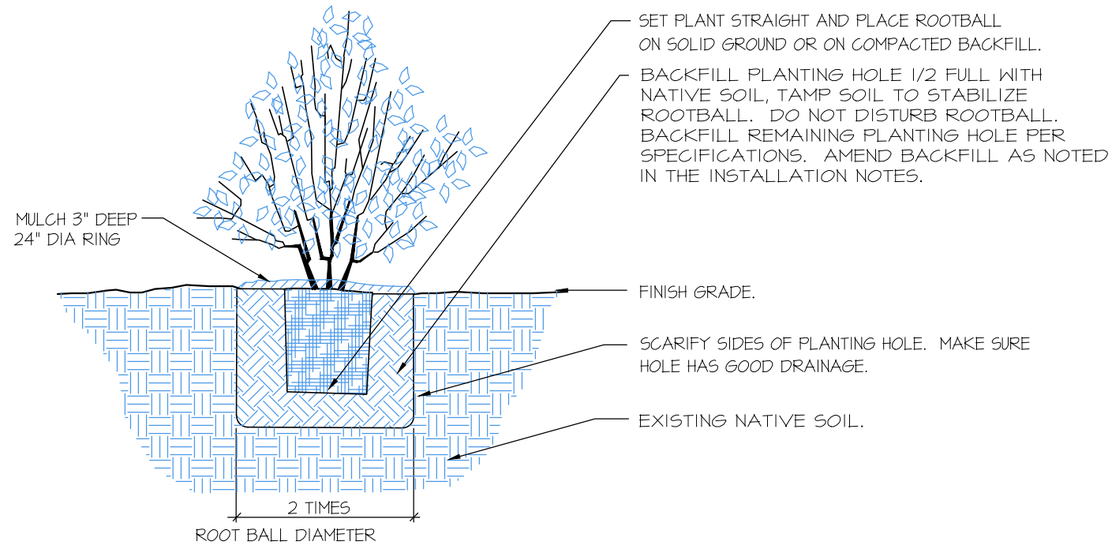
SPECIFICATIONS

1. CONTRACTOR INFORMATION. WHEN IT IS AVAILABLE, CONTACT INFORMATION SHALL BE PROVIDED TO THE CITY OF BELLEVUE THAT INCLUDES NAMES, ADDRESSES AND PHONE NUMBERS OF PERSONS/FIRMS THAT WILL BE RESPONSIBLE FOR INSTALLING REQUIRED PLANTS AND PERFORMING REQUIRED MAINTENANCE.
2. CONTRACTOR'S QUALIFICATIONS. ALL WORK SHALL BE PERFORMED BY A LICENSED LANDSCAPE CONTRACTOR REGISTERED IN THE STATE OF WASHINGTON. CONTRACTOR MUST BE EXPERIENCED IN MITIGATION AND RESTORATION WORK. THE CONTRACTOR SHALL PROVIDE THAT THERE IS ONE PERSON ON THE SITE AT ALL TIMES DURING WORK AND INSTALLATION WHO IS THOROUGHLY FAMILIAR WITH THE TYPE OF MATERIALS BEING INSTALLED AND THE BEST METHODS FOR THEIR INSTALLATION, AND WHO SHALL DIRECT ALL WORK BEING PERFORMED UNDER THESE SPECIFICATIONS. THIS PERSON SHALL HAVE A MINIMUM OF FIVE (5) YEARS EXPERIENCE INSTALLING NATIVE PLANT MATERIALS FOR WETLAND MITIGATION OR RESTORATION PROJECTS, UNLESS OTHERWISE ALLOWED BY THE LANDSCAPE DESIGNER, WETLAND BIOLOGIST AND/OR THE CITY OF BELLEVUE.
3. ALL PLANTS SHOULD BE INSTALLED BETWEEN DECEMBER 1ST AND MARCH 15TH.
4. INTERMEDIATE INSPECTIONS. ALL PLANTS SHALL BE INSPECTED AND APPROVED BY THE LANDSCAPE DESIGNER AND/OR WETLAND BIOLOGIST PRIOR TO INSTALLATION. CONDITION OF ROOTS OF A RANDOM SAMPLE OF PLANTS WILL BE INSPECTED, AS WELL AS ALL ABOVEGROUND GROWTH ON ALL PLANTS. ROOTS OF ANY BARE ROOT PLANTS, IF PERMITTED FOR USE, WILL BE INSPECTED. PLANT MATERIAL MAY BE APPROVED AT THE SOURCE, AT THE DISCRETION OF THE LANDSCAPE DESIGNER AND THE WETLAND BIOLOGIST, BUT ALL MATERIAL MUST BE RE-INSPECTED AND APPROVED ON THE SITE PRIOR TO INSTALLATION. PLANT LOCATIONS SHALL ALSO BE INSPECTED AND APPROVED PRIOR TO PLANTING.
5. PRIOR TO INSTALLATION OF PLANT MATERIAL, THE PLANTING AREAS WILL BE LAID OUT BASED ON THE PLANTING PLAN, AND ALL HIMALAYAN BLACKBERRY, ENGLISH IVY OR OTHER INVASIVE PLANT SPECIES LOCATED IN THE PLANTING AREAS WILL BE REMOVED BY HAND.
6. ALL PLANTS SHALL BE PIT-PLANTED IN PLANTING PITS EXCAVATED 2X THE DIAMETER OF THE PLANT. PITS SHALL BE BACKFILLED WITH A 30/70 MIX OF ORGANIC WEED-FREE COMPOST TO NATIVE SOIL. PITS SHALL BE AMENDED WITH A HYDRATED SOIL POLYMER (INSTALLED AT RATES PER MANUFACTURER'S SPECIFICATIONS). PLANTS SHALL BE INSTALLED 2" HIGH AND SURFACED MULCHED TO A DEPTH OF 2" WITH MEDIUM-COURSE BARK MULCH PLACED CONTINUOUSLY THROUGHOUT THE PLANTING BED.
7. ALL PLANTS SHALL BE NURSERY GROWN (IN WESTERN WA OR OR) FOR AT LEAST 1 YEAR FROM PURCHASE DATE, FREE FROM DISEASE OR PESTS, WELL-ROOTED, BUT NOT ROOT-BOUND AND TRUE TO SPECIES.
8. PLANT LAYOUT SHALL BE APPROVED BY AOA PRIOR TO INSTALLATION AND APPROVED UPON COMPLETION OF PLANTING.
9. UPON COMPLETION OF PLANTING, BARE AREAS SHALL BE STRAW MULCHED TO A DEPTH OF 1" AND ALL PLANTS SHALL BE THOROUGHLY WATERED.
10. UPON APPROVAL OF PLANTING INSTALLATION BY AOA, THE CITY OF BELLEVUE WILL BE NOTIFIED TO CONDUCT A SITE REVIEW FOR FINAL APPROVAL OF CONSTRUCTION.
11. MAINTENANCE SHALL BE REQUIRED IN ACCORDANCE WITH THE CITY OF BELLEVUE SENSITIVE AREAS MITIGATION GUIDELINES AND APPROVED PLANS.
12. ALL PLANTS SHALL BE HAND-WATERED, AS NECESSARY DURING THE FIRST TWO DRY SEASONS. BETWEEN JUNE 15 - OCTOBER 31. FLOW SHOULD ENSURE COMPLETE SATURATION OF THE ROOT ZONE.
13. MAINTENANCE SHALL BE IMPLEMENTED ON A REGULAR BASIS ACCORDING TO THE SCHEDULE BELOW.

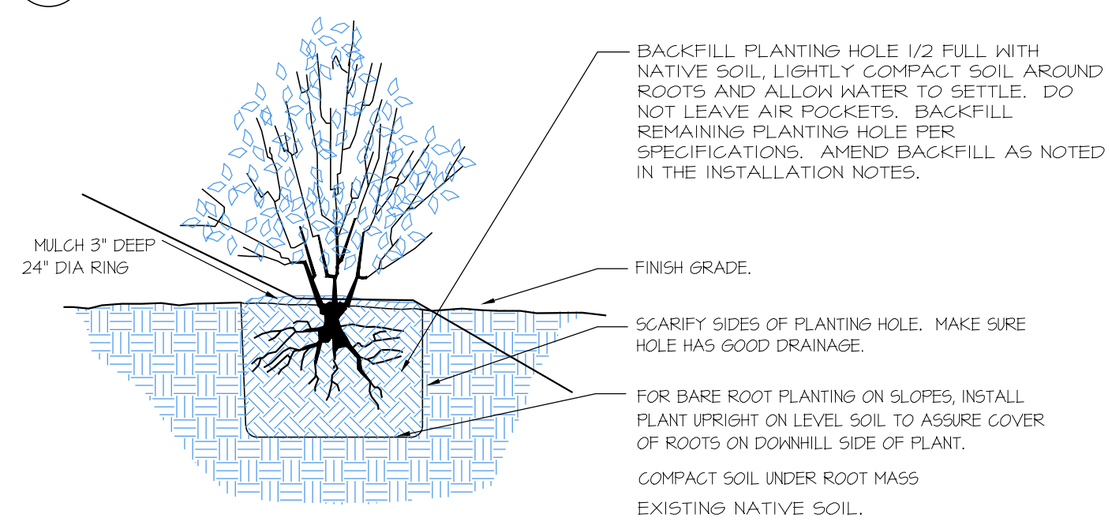
ANNUAL MAINTENANCE SCHEDULE

MAINTENANCE ITEM	J	F	M	A	M	J	J	A	S	O	N	D
WEED CONTROL			1	1	1	1	1	1	1	1	1	
GENERAL MAINT.	1	1	1	1	1	1	1	1	1	1	1	1

1-8 = NUMBER OF TIMES TASK SHALL BE PERFORMED PER MONTH.



1 CONTAINER TREE/SHRUB PLANTING DETAIL (typ.)
N.T.S.



2 BARE-ROOT TREE/SHRUB PLANTING DETAIL (typ.)
N.T.S.

PROJECT 4055
DRAWN SO
SCALE AS NOTED
DATE 06-24-11
REVISED
3/3

FIGURE 3: SPECIFICATIONS & DETAILS
MITIGATION PLAN
CHANG RESIDENCE
KING COUNTY, WASHINGTON

Altmann Oliver Associates, LLC
AOA Environmental Planning & Landscape Architecture
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4569

4055-MIT-06-24-11.dwg

Attachment 4
Maintenance and Monitoring Plan

Altmann Oliver Associates, LLC

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

AOA

Environmental Planning & Landscape Architecture

June 23, 2011

AOA-4055

Tom Kuniholm
600 First Ave., Suite 205
Seattle, WA 98104

SUBJECT: **Chang Residence Remodel at 255 Shoreland Drive SE**
Critical Areas Study: Slope and Shoreline Mitigation
City of Bellevue File No: 11-111292-LO

Dear Tom:

On June 3, 2011 I conducted a reconnaissance on the subject property to assess impacts to critical areas from previous un-permitted activities, and as part of the proposed re-model of the existing residence. The project site is located on Lake Washington, which requires a 25-foot buffer and a 25-foot structure setback from the surveyed ordinary high water (see survey drawing prepared by Axis Survey & Mapping). In addition, the majority of the central and eastern portions of the site consists of steep slope (see Geotechnical Report).

1.0 CRITICAL AREA IMPACTS

The proposed project requires the impact of 183 s.f. of existing lawn located within the 25-foot shoreline structure setback area. In addition, the project includes a total of 716 s.f. of steep slope impact area located along the south and west sides of the house. This steep slope impact area consists of a combination of: 1) the unpermitted stairway along the south property line, 2) replacement decks along the south façade, and 3) improvements to the west façade. One large cedar tree was also apparently removed on the slope south of the house due to safety concerns.

With the exception of the previously removed cedar tree, no significant vegetation is proposed for removal within the impacted steep slope or shoreline structure setback areas. All of the proposed impact areas have a very low functional value and currently consist of sparsely vegetated yard areas that provide minimal stability to the slope and provide little habitat value. Furthermore, it is our understanding that all of the previously impacted steep slope areas were in a similar developed condition with little habitat value.

2.0 CRITICAL AREA MITIGATION

Mitigation for the minor loss of function associated with the 183 s.f. of impact to the existing lawn area located within the shoreline structure setback will consist of planting native shrubs within a 183 s.f. area of existing yard located along the shoreline in the northwest portion of the site. Enhancement of this area would increase the habitat value of the area over current conditions.

Mitigation for the 716 s.f. of steep slope impact will occur through: 1) the removal of two existing decks along the east side of the house that will be restored with native vegetation and 2) planting sparsely vegetated slope areas along the north and south sides of the house. The overall slope enhancement area will total 716 s.f. and has been designed to increase the habitat value of the slope by increasing the plant species and structural diversity while increasing stability.

Mitigation for the loss of the cedar tree that was removed from the south side of the house for safety concerns would occur through the planting of three new large cedar trees off the northwest corner of the house.

Implementation of the mitigation plan should replace and exceed the minor functions currently provided by the impacted critical areas.

2.1 Goal, Objectives, and Performance Standards for Mitigation Areas

The primary goal of the mitigation plan is to increase the habitat and stability functions of the existing degraded critical areas. To meet this goal, the following objectives and performance standards have been incorporated into the design of the plan:

Objective A: Increase the structural and plant species diversity within the mitigation areas.
Performance Standard: Following every monitoring event for a period of at least five years, the mitigation areas will contain a total of at least 6 native plant species. In addition, there will be 100% survival of all woody planted species throughout the mitigation areas at the end of the first year of planting. Following Year 1, success will be based on an 80% survival rate or similar number of recolonized native woody plants.

Objective B: Limit the amount of invasive and exotic species within the mitigation areas.
Performance Standard: After construction and following every monitoring event for a period of at least five years, exotic and invasive plant species will be maintained at levels below 10% total cover in the designated mitigation areas. Invasive species include, but are not limited to, Himalayan and evergreen blackberry, Japanese knotweed, and English ivy.

2.2 Construction Management
Prior to commencement of any work in the mitigation areas, the clearing limits will be staked and any existing vegetation to be saved will be clearly marked. A pre-construction meeting will be held at the site to review and discuss all aspects of the project with the landscape contractor and the owner.

A consultant will supervise plan implementation during construction to ensure that objectives and specifications of the mitigation plan are met. Any necessary significant modifications to the design that occur as a result of unforeseen site conditions will be jointly approved by the City of Bellevue and the consultant prior to their implementation.

2.3 Monitoring Methodology
The monitoring program will be conducted for a period of five years, with annual reports submitted to the City. Vegetation monitoring will include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weeds.

Photo-points will be established from which photographs will be taken throughout the monitoring period. These photographs will document general appearance and progress in plant community establishment in the mitigation areas. Review of the photos over time will provide a visual representation of success of the mitigation plan.

2.4 Maintenance Plan
Maintenance will be conducted on a routine, year round basis. Additional maintenance needs will be identified and addressed following periodic maintenance reviews. Contingency measures and remedial action on the site shall be implemented on an as-needed basis at the direction of the consultant or the owner.

2.5 Weed Control
Routine removal and control of non-native and other invasive plants within the designated mitigation areas shall be performed by manual means. Undesirable and weedy exotic plant species shall be maintained at levels below 10% total cover within all mitigation areas during the five-year monitoring period.

2.6 General Maintenance Items
Routine maintenance of planted trees and shrubs shall be performed. Measures include resetting plants to proper grades and upright positions. Tall grasses and other competitive weeds shall be weeded at the base of plants to prevent engulfment. Weed control should be performed by hand removal.

2.7 Contingency Plan
All dead plants will be replaced with the same species or an approved substitute species that meets the goal of the mitigation plan. Plant material shall meet the same specifications as originally-installed material. Replanting will not occur until after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.). Replanting shall be completed under the direction of the consultant, City of Bellevue, or the owner.

2.8 As-Built Plan
Following completion of construction activities, an as-built plan for the mitigation area will be provided to the City of Bellevue. The plan will identify and describe any changes in relation to the original approved plan.

If you have any questions regarding the mitigation plan, please give me a call.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC

John Altmann
Ecologist